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Abstracts

[Where initials appear after an abstract, it has been written by a member of the Institute's scientific staff; where not so identified, it has been written by the editorial staff. The participation of the members of the scientific staff in abstract work is helpful both to the editorial office and to the reviewers themselves.]

ORGANIC FIBERS I

GERMAN FIBERS. Anon. *Chem. & Met. Eng. 53,* No. 2, 162-3 (Feb. 1946).

Photographs are given of novel German equipment for rayon and synthetic fiber industry. Further details can be obtained from OPB Report 377, "Continuous and Staple Fiber Plants in Germany", Office of Publication Board.

LCL TTD:4-46.

RAYON BLENDS. Tools for the intelligent. C. M. Whittaker, Courtaulds Ltd. *Textile Mfr. 72,* 44-6 (Jan. 1946).

A lecture discusses the possibility of rayon blends by control of staple length, denier, luster, etc. The adaptability of rayon distinguishes it from natural staples such as silk, wool, cotton, flax and jute, all of which have their special spinning systems. TTD:4-46.

TEXTILE FIBRE ATLAS. Von Bergen & Krauss, Textile Book Publishers, Inc. New York, N. Y., 1945; 311 photomicrographs, 38 pp.; price $4.00.

Reviewed in *Fibres, Fabrics & Coradge 13,* 20 (Jan. 1946). TTD:4-46.

Vegetable fibers I 1

FIBER PREPARATION. Philip G. Duechler (to Certain-Teed Products Corp.). Can. P. 433 260, Feb. 26, 1946.

Vegetable fibers are chemically treated in gas chambers to remove encrusting substances.

TTD:4-46.

FLAX AND HEMP. Methods for unretted flax and hemp. J. F. Hagen. *Textile Mfr. 72,* 28-30 (Jan. 1946).

Because of severe shortage of cotton in Germany (reduced to the vanishing point at the war's end) staple rayon was blended with cottonized flax and hemp (Flockenbast). German methods in blending these fibers are discussed. The alkaline and Korte processes are 2 methods considered in preparation of unretted flax and hemp. TTD:4-46.

Cotton I 1 a

COTTON. Evershed commission report. Anon. *Fibres 7,* 1-4 (Jan. 1946).

Among topics considered by the report are: Russian cotton (particularly naturally colored), electron microscope for fiber examination, clothing standards, German fiber developments, etc. TTD:4-46.

COTTON FIBERS. Structure and plasticity of undried cotton fibers. Earl E. Berkley & Thomas Kerr, USDA *Ind. Eng. Chem. 38,* 304-9 (Mar. 1946).

X-ray patterns of undried cotton fibers taken from developing bolls show little or no evidence of crystalline cellulose. When first dehydrated, the pattern of native cellulose appears. The fibers possess considerable plasticity. When stretched, the slope of the cellulose spiral in the secondary wall and the fiber strength are increased. Tension causes some crystallization of the cellulose even in fibers which have never been dried. To try to prevent crystallization of cellulose upon drying, undried cotton fibers are impregnated with strong glucose solutions. Fibers so impregnated and dried without tension show diffraction lines from both glucose and cellulose oriented with respect to the long line of the fiber. When the fibers are stretched, certain other lines in the x-ray pattern appear in addition to the glucose and cellulose lines. Flax fibers, unlike cotton, show some crystallization before dehydration.

WPU, Jr. TTD:4-46.

COTTON SPINNING. Views on cotton spinning. F. P. Slater. *J. Textile Inst. 37,* P1-8 (Jan. 1946).

A lecture reviews cotton spinning and includes a brief background of the fiber, continuing with the cleaning, mixing, carding, combing and drawing. TTD:4-46.

PERUVIAN COTTON. Five-year breeding program to improve Peruvian cotton. H. Martin Leake. *Fibres 7,* 13-5 (Jan. 1946).

Tanguis cotton cultivation in Peru is reported on. Elimination of selfing after 2 years of a continuous selection process is discussed. TTD:4-46.

AMERCIAN COTTON HANDBOOK. Merrill, Macormac & Mauersberger, Textile Book Publishers, Inc. New York, N. Y., 1945; 1000 pp.; price $6.38.

Reviewed in *Fibres, Fabrics & Cordage 13,* 20 (Jan. 1946). TTD:4-46.

QUALITY OF COTTON IN CARRY-OVER. Cotton Branch, Production and Marketing Administration, USDA, Washington, 1945; 10 pp. TTD:4-46.

RESULTS OF FIBER AND SPINNING TESTS FOR SOME VARIETIES OF COTTON GROWN IN THE US, CROP OF 1945. USDA Production and Marketing Administration, Cotton Branch, Washington, March 1946; 33 pp. TTD:4-46.

SEA ISLAND COTTON. J. B. Hutchinson & H. L. Manning. Memoirs of the Cotton Research Station, Trinidad, Series A: Genetics, No. 25. Empire Cotton Growing Corp., London, 1945; 13 pp.; price 2s. 6d. TTD:4-46.

VARIETAL AND ENVIRONMENTAL EFFECTS SUMMARIZED FROM THE 1945 COOPERATIVE FIBER AND SPINNING STUDIES. USDA Bureau of Plant Industry, Soils and Agricultural Engineering, Washington, March, 1946; 4 pp. TTD:4-46.

Flax I 1 b

FLAX. Chemurgic achievements for Oregon, 1945. H. W. Berry, Oregon State Committee, Nat. Farm Chemurgic Council. *Chemurgic Digest 5,* 20 (Jan. 15, 1946).

Continuing research into flax harvesting, scutching, tow cleaning and improving of fiber quality and length is reported. TTD:4-46.

FLAX. Modern practice in flax dressing. Technologist. *Fibres 7,* 8-11 (Jan. 1946).

Mechanization of the processes of flax fiber preparation (hackling, breaking, etc.) is discussed. TTD:4-46.

FLAX can be run on cotton and worsted machinery. S. A. G. Caldwell. *Textile World 96,* No. 1, 106-7, 200 (Jan. 1946).

Flax fiber is best spun (for economy) on cotton and worsted machinery as their systems are much cheaper to install and operate than that normally used for flax. Worsted machinery lends itself more readily to flax processing than does cotton. Problems of adaptation are discussed. TTD:4-46.

OREGON FIBER FLAX FOR AN AMERCIAN LINEN INDUSTRY. Richard Pfefferkorn, O. S. C. Cooperative Ass'n. Corvallis, Ore.; 1944; 46 pp.; price 50c.

Reviewed in *Fibres, Fabrics & Cordage 13,* 20 (Jan. 1946). TTD:4-46.

1945 LINENS AND DOMESTICS DIRECTORY NUMBER OF LINENS AND DOMESTIC MANUFACTURERS. Haire Publishing Co., New York, N. Y.; 1945; 162 pp. price $1.00.

Reviewed in *Textile Research J. 16,* 35 (Jan. 1946). TTD:4-46.

Minor fibers I 1 c

RAMIE—has tantalized textile men for one hundred years. Wm. B. Dall, Textile World. *Textile World 95,* No. 12, 93-8, 206, 210 (Dec. 1945).

The history of ramie is reviewed. Its good and bad points are discussed and its future prospects considered. TTD:4-46.

Bast fibers I 1 d

JUTE. Technical developments in jute manufacture. (IV, V.) S. A. G. Caldwell. *Textile Mfr. 71,* 430-1, 482-3 (Oct., Nov. 1945).

Some modern improvements in jute handling machinery include the Reece rotating traverse roll machines for making cross-wound cheeses or cones; winders for making parallel or conical packages; the Lazenby high speed cop winders; the Hibbert type combined warping and dressing machines, and the Northrop automatic jute loom. TTD:4-46.

Animal fibers I 2

ANIMAL FIBERS. Their growth and structure. J. L. Stoves, Leeds Univ. *Fibres 7,* 5-7 (Jan. 1946).

Fiber growth, with particular reference to cell structure, is described. TTD:4-46.

OUTLINE OF THE AMINO ACIDS AND PROTEINS. Melville Sohyun, Reinhold Publishing Corp., New York, N. Y.; 1944; 251 pp.; price $4.00.

Reviewed in *Textile Research J. 16,* 33 (Jan. 1946). TTD:4-46.

FELT, GARNETTED (FOR MATTRESS FILLING). Navy Dept. Specification 27F9a, Washington 1945, 4pp. TTD:4-46.

Artificial fibers I 3

ALGINATE FIBERS COMPARED. C. K. Tseng. *Textile World 95,* No. 12, 113 (Dec. 1945).

Characteristics of alginate fibers are compared in a table. TTD:4-46.

ALGINATE RAYONS are distinctive new fibers. P. Ripley. *Textile World 95,* No. 12, 112-13 (Dec. 1945).

Nonflammability of all and solubility of some render alginate fibers adaptable to many varied uses (e. g. "carrier" threads which can be dissolved after they have assisted in weaving fine fabrics). TTD:4-46.

SPINNING ARTIFICIAL THREADS. R. S. Jones (to Courtaulds, Ltd.). Brit. P. 570 618. *Textile Mfr. 72,* 52 (Jan. 1946).

In wet spinning artificial threads the reciprocating funnel is movably suspended on a level with a centrifugal box in which the thread is collected. TTD:4-46.

CELLULOSIC FIBERS. Imperial Chemical Industries, Ltd. Brit. P. 570 853. *Textile Mfr. 72,* 54 (Jan. 1946).

Cellulosic fibers produced by dissolving in a common solvent a derivative containing free hydroxyl groups and a crystalline monomeric polyalkoxymethyl melamine are insoluble in organic solvents. TTD:4-46.

CELLULOSIC FIBER. Jas. H. MacGregor (Courtaulds, Ltd.). Can. P. 433 005, Feb. 12, 1946.

The handle and dyeing properties are improved when cellulosic textile fibers are impregnated with an aqueous solution of a guanidine salt and formaldehyde (with or without urea). TTD:4-46.

VARKA SUL'FITNOI TSELLYULOZY (COOKING OF SULFITE CELLULOSE). M. G. Eliashberg. Ed. 3; 1944; 88 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Cellulosic rayons — I 3 a

RAYON from cornstalks. Anon. *Chemurgic Digest 5,* 62 (Jan. 31, 1946).

Corn and sunflower stalks are a source of rayon in Hungary. TTD:4-46.

RAYON. Developments in acetate rayon. Harold D. Smith. *Textile Bull. 69,* No. 10, 32, 47 (Jan. 15, 1946).

Acetate rayon's versatility is indicated by its numerous military uses: tow-targets, fused-edge tapes, lint-free wiping cloths, electrical insulation, fluorescent signal panels, etc. TTD:4-46.

RAYON in 1946. Louise M. Whitney, Am. Viscose Corp. *Chemurgic Digest 5,* 25-6 (Jan. 15, 1946).

Rayon's prospects for the year are discussed. TTD:4-46.

VISCOSE. Investigations concerning the filtering properties of viscose. Olof Samuelson, Mo & Domsjö AB. *Svensk Papperstidning 48,* 517-27 (Nov. 15, 1945). (In English).

The filtering behavior of viscose spinning solutions deteriorates considerably when critical amounts of CS_2 or of NaOH are not present. The optimum amount of reagent depends on the previous history of the viscose. After active mechanical working less of the reagents are needed than when the working has been less vigorous. Filtrability becomes independent of mechanical treatment, however, at very high concentrations of CS_2 or NaOH. Causes and prevention of clogging of filters for viscose are discussed. Bibliography (39 references). TTD:4-46.

YARN STRETCHING. Brit. Celanese, Ltd. Brit. P. 570 646. *Textile Mfr. 72,* 52 (Jan. 1946).

Cellulose acetate filaments are stretched in a steam atmosphere. TTD:4-46.

RAYON. Am. Viscose Corp. Brit. P. 571 578. *Textile Mfr. 72,* 69a (Jan. 1946).

Rayon filaments fed from a supply package are collected and passed to a yarn handling device by means of an improved pair of godet wheels. TTD:4-46.

CELLULOSE ESTERS. Geo. W. Seymour, Mervin E. Martin & Robt. D. Rowley (to Camille Dreyfus). Can. P. 433 068, Feb. 12, 1946.

Stability of cellulose acetate is increased by acetylation with acetic anhydride in acetic acid solution catalyzed by H_2SO_4. TTD:4-46.

CELLULOSE ACETATE. Jno. E. Jones (to Henry Dreyfus). Can. P. 433 197, Feb. 19, 1946.

Cellulose acetate is esterified with an organic acid anhydride in a liquid medium comprising glacial acetic acid and an acetylation catalyst. TTD:4-46.

ARTIFICIAL WOOL. Heberlein & Co. Swed. P. Appl. 1602/41, Mar. 18, 1941; *Svensk Papperstidning 48,* 599 (Dec. 31, 1945).

A method for converting rayon into wool-like fibers, and textile yarns or fabrics prepared by this method. TTD:4-46.

CELLULOSE DERIVATIVES. Schering A.-G. Swed. P. Appl. 3438/42, Jan. 10, 1940; *Svensk Papperstidning 48,* 229 (May 15, 1945).

A method for converting fibrous cellulose into cellulose derivatives without loss of fibrous structure. TTD:4-46.

RAYON. Texis Société Anonyme Textile. Swed. P. Appl. 2260/43 & 2261/43, Mar. 29, 1943; *Svensk Papperstidning 48,* 577 (Dec. 15, 1945).

A process for making cellulose ether filaments, fibers or foils; and a method for making artificial sheet materials from solutions of the xanthates of cellulose or its derivatives. TTD:4-46.

PURE CELLULOSE. Enso-Gutzeit Osakeyhtiö. Swed. P. Appl. 7543/43, Oct. 30, 1943; *Svensk Papperstidning 48,* 229 (May 15, 1945).

A process for making purified cellulose. TTD:4-46.

SPINNING RAYON. P. A. Nikles. Swed. P. Appl. 161/45, Jan. 4, 1945; *Svensk Papperstidning 48,* 599 (Dec. 31, 1945).

A device for actuating the filament feed on rayon spinning machines. TTD:4-46.

DRY SPINNING. G. Mouchiroud & J. Trillat (to Société Rhodiaceta). Swed. P. 112 960, June 7, 1943; *Svensk Papperstidning 48,* 117 (Mar. 15, 1945).

In making filaments, yarn or tape by dry spinning of cellulose derivative solutions the apparatus is so arranged that the product carries with it an evaporation atmosphere which cools the spun product to an extent corresponding to the vapor pressure of the solvent medium, which is less than O.1 atm. TTD:4-46.

HIGH STRENGTH STAPLE FIBER. P. K. Teissen & A. Stein (to Spinnstoffwerk A.-G. & Deutscher Zellwoll-Ring E. V.). Swed. P. 113 630,

Mar. 20, 1940; *Svensk Papperstidning 48,* 179 (Apr. 15, 1945).

High tenacity viscose is made in continuous filaments from a viscose spinning solution with low alkali and comparatively high cellulose content, and with low H_2SO_4 and high $ZnSo_4$ content. The filaments coming from the spinnerets are stretched and converted to cellulose hydrate under full tension in a hot, faintly acid salt bath. Stretching is accomplished in successive stages between which the filament is held under just enough tension to prevent shrinkage. TTD:4-46.

TREATING CELLULOSE. E. Sunesson (to Uddeholms Aktiebolag). Swed. P. 113 913, Jan. 23, 1933; addition to 97793. *Svensk Papperstidning 48,* 230 (May 15, 1945).

In making a cellulose, suitable for further processing, the treatment of cellulose prepared by alkaline digestion as described in Swed. P. 97793 is improved by preceding the liquid or vapor phase chlorination treatment by a treatment with strong alkali (up to mercerizing strength). TTD:4-46.

RAYON. R. Jenke (to Thüringische Zellwolle A.-G.). Swed. P. 114 295, Dec. 23, 1938; *Svensk Papperstidning 48,* 305 (June 30, 1945).

Alkaline liquor for refining and purifying cellulose is maintained in continuous flow through a series of treatment vessels. The alkali content of the caustic bath is adjusted to the required removal of incrustation, and the pressure in the total digester system is independent of the temperature in successive stages. TTD:4-46.

DRY SPINNING. Bata A/G. Swed. P. 114 411, Nov. 14, 1942; *Svensk Papperstidning 48,* 356 (July 31, 1945).

In making rayon by dry spinning the filament is extruded in a vacuum produced by a gas or vapor jet on the aspirator principle. TTD:4-46.

TALKS ON RAYON. COTTON AND RAYON MERCHANTS' ASS'N. Manchester, 1945; 130 pp.; price 12s 6d.

Reviewed in *Textile Mfr. 72,* 50 (Jan. 1946). TTD:4-46.

Protein fibers — I 3 b

ARALAC. A new fiber made from milk protein. Anon. *Traveler,* No. 115, 8-12 (Apr. 1946).

Aralac, a protein fiber from casein, is briefly described. Photomicrographs compare its fibers to wool, and a table of its physical properties is listed. TTD:4-46.

PROTEIN FIBERS. Geo. S. de Kadt; vested in Alien Property Custodian. USP 2 392 582 (Jan. 8, 1946).

Alkaline protein fibers (e. g. casein) are extruded into a coagulating bath in an atmosphere of water vapor at about 40°C and stretched under moderate tension. TTD:4-46.

CASEIN CRIMPING. R. H. K. Thomson (to Imperial Chemical Industries, Ltd.). Brit. P. 570 631. *Textile Mfr. 72,* 52 (Jan. 1946).

Wet-spun insolubilized casein filaments are treated with formaldehyde at raised temperatures under tension. When tension is relaxed consequent shrinkage produces crimping. TTD:4-46.

PROTEIN FILAMENTS. E. I. Jones and W. A. Caldwell (to Imperial Chemical Industries, Ltd.). Brit. P. 570 686. *Textile Mfr. 72,* 53 (Jan. 1946).

Sticking of protein filaments after extrusion into a coagulating bath and prior to insolubilization is prevented by passing through a lubricating bath of oil, fat or wax. TTD:4-46.

CASEIN SPINNING. R. Signer. Brit. P. 571 468. *Textile Mfr. 72,* 56 (Jan. 1946).

In dry spinning of alkaline casein solutions the spinning interval is extended by addition of oleic acid or other saponaceous compound. TTD:4-46.

PROTEIN FIBERS. R. Signer. Brit. P. 571 518. *Textile Mfr. 72,* 69a (Jan. 1946).

Breakage of threads of protein fibers after storage is avoided by addition of an acridine dye. TTD:4-46.

EXPERIMENTS TO PRODUCE TEXTILE FIBERS FROM FISH PROTEIN. Brit. Intelligence Objectives Sub-Committee Report No. 90; price 1s 1d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

Synthetic fibers — I 4

RAYON. N. V. de Bataafsche Petroleum Mij. Swed. P. Appl. 2440/44, Mar. 23, 1944; *Svensk Papperstidning 48,* 302 (June 30, 1945).

A method for making filaments, threads, tapes and foils. TTD:4-46.

RAYON. N. V. de Bataafsche Petroleum Mij. Swed. P. 115 179, Mar. 23, 1944; *Svensk Papperstidning 48,* 533-4 (Nov. 15, 1945).

Threads, fibers, tapes and foils are made from high polymers which are made to react with inorganic acids (or their anhydrides) in a lower valence of a multivalent element, e. g. SO_2 or P_2O_3 or their acids. TTD:4-46.

Nylon type — I 4 a

PERLON, the German nylon. Anon. *Fibres 7,* 11-2 (Jan. 1946).

Properties of Perlon (polyamide-polyurethane synthetic fiber) are described. A table compares its elasticity with silk, wool, cotton, and cord silk. TTD:4-46.

RAYON. Developments in viscose rayon. F. Bonnet. *Textile Bull. 69,* No. 10, 32, 34 (Jan. 15, 1946).

A brief review. TTD:4-46.

WOOL TYPE NYLON. Jas. L. Getaz. USP 2 394 165, Feb. 5, 1946.

Synthetic fibers, preferably nylon, are permanently crimped by a setting process in the presence of moisture at about 212-240°F so that they resemble wool in two of its most important characteristics: elasticity and warmth. Fibers so treated are not distorted by subsequent dyeing or laundering operations.
TTD:4-46.

Vinyl resin type **I 4 b**

SYNTHETIC FIBERS. Ductility of acetate rayon. Anon. *Dyer 95,* 35-6 (Jan. 4, 1946).

Ductility of acetate rayon is observed greatly to increase from absorption of amines and aniline in dye baths. High boiling alcohol will effect similar stretching. TTD:4:46.

VINYON. A new family of textile fibers. Anon. *Traveler* No. 114, 8-13 (Jan. 1946).

The production, special qualities, and future applications of Vinyon are briefly reviewed. TTD:4-46.

VISCOSE. Brit. Cellophane, Ltd. Brit. P. 571 502. *Textile Mfr. 72,* 56 (Jan. 1946).

A uniform viscose with a minimum of air bubbles is formed by xanthation in NaOH solution.
TTD:4-46.

THE NEW FIBERS. Jos. V. Sherman. D. Van Nostrand Co., Inc., New York City; 1946 (to be published).

Reviewed in *Textile Bull. 69,* No. 9, 11-12, 40 (Jan. 1, 1946). TTD:4-46.

Fiber applications **I 5**

FIBER PRODUCTS. Kooperativa Förbundet Förening. Swed. P. Appl. 1409/43, Feb. 27, 1943; *Svensk Papperstidning 48,* 577 (Dec. 15, 1945).

Facing pulp sheets or the like with a thin flexible layer of paper, cardboard or a textile fabric.
TTD:4-46.

Coated products **I 5 c**

BINDER. P. Quittmann (to Société Sandor). Swed. P. Appl. 3795/39, July 10, 1939; *Svensk Papperstidning 48,* 577 (Dec. 15, 1945).

Method of making an adhesive composition for impregnating fibrous materials. TTD:4-46.

SHEET MATERIAL. Westinghouse Electric & Mfg. Co. Swed. P. Appl. 4480/42, July 16, 1942; *Svensk Papperstidning 48,* 279 (June 15, 1945).

A sheet material, formed by pressing or by other means, is composed of a layer of fiber impregnated with a phenolic resin and a coating of a melamine-aldehyde resin. TTD:4-46.

INORGANIC FIBERS **II**

Mineral fibers **II 1**

ASBESTOS FABRIC. New fabric from the world's oldest fiber. Anon. *Textile Age 10,* No. 1, 27-30, 32, 34, 36 (Jan. 1946).

A new fabric now offered for sale is Asbeston, an asbestos cloth of U. S. Rubber. The history of asbestos, its mining and early use, is given. TTD:4-46.

MINERAL WOOL. Edw. F. Cusick. USP 2 394 155, Feb. 5, 1946.

Mineral wool is produced in pellet form by an improved method, and at the same time the sand usually attached to each fiber is removed and sifted out in a single continuous operation. TTD:4-46.

ASBESTOS FIBER. Lee C. Pharo. Can. P. 432 989, Feb. 12, 1946.

Crushed and dried asbestos ore is screened to obtain fibers of uniform length (about 0.75 in.).
TTD:4-46.

Glass fibers **II 2**

FIBERGLAS—REINFORCED PLASTICS: Development, properties, and fabrication of Fiberglas-reinforced plastics. Gaines Slayter & H. W. Collins. Paper presented to *Am. Inst. Chem. Engrs.* Dec. 17-19, 1945 (Supplement *Trans. Am. Inst. Chem. Engrs.*).

Fiberglas-plastic laminates have exceptional properties: strength per unit of weight, dimensional stability, weather and corrosion resistance. Being fabricated with low-pressure resins, costs of dies and other equipment are very low. Studies of cloth construction indicate optimum properties with thinnest cloths, or satin weaves. Satin weaves often eliminate necessity of cross-laminating. Unidirectional cloths (strong warp and light fill, or vice versa) in alternate direction give cross-laminate effect when laminates are laid in the same cloth direction.
LCL TTD:4-46.

GLASS FIBERS AS ERASERS. Anon. *Fibres 7,* 23 (Jan. 1946).

Glass fiber erasers for typewriting are new.
TTD:4-46.

CRIMPED GLASS FIBERS. Stuart M. Dockerty (to Owens-Corning Fiberglas Corp.). USP 2 395 371, Feb. 19, 1946.

A glass fiber wool (such as for insulation) may be made more cohesive and given better felting properties than heretofore by an improved crimping process that forms closely interlocking loops. TTD:4-46.

FIBER TO YARN — III

Fiber preparation — III 1

FIBER DECORTICATION. Jno. V. Johansen. USP 2 391 977 (Jan. 1, 1946).

An improved method of decorticating retted or partially retted fibers (such as hemp, ramie, sisal, etc.) which gives a high percentage of long line fibers with a minimum of tow, uses an air stream to assist in separating the broken fibers. TTD:4-46.

PICKER MACHINE. Paul Schultze (to Doran Bros., Inc.). USP 2 392 774-7 (Jan. 8, 1946).

An improved high speed picker machine for separating fur felt consists of a hollow cylinder with drilled holes into which picker pins may be automatically fed. TTD:4-46.

FIBER PREPARATION. F. Dunkerley, F. Aldington, A. Waddington & H. S. Butterworth. Brit. P. 570 777. *Textile Mfr. 72,* 53-4 (Jan. 1946).

In a vertical cylinder fibers, both natural and artificial, are opened and cleaned by means of an electrical field set up in the cylinder. An air stream aids in separation of the fibers from the foreign particles after they have been loosened. TTD:4-46.

Carding — III 1 c

CARDING. Modern methods of wool carding. J. W. Radcliffe. *Textile Mfr. 72,* 10-12 (Jan. 1946).

Wool carding is a controversial subject. Careful cleaning of raw materials would reduce the amount of carding necessary. The Peralta machine offers improvements, especially in the case of blends. TTD:4-46.

COMBER maintenance and overhauling. Anon. *Indian Textile J. 56,* 364-5 (Jan. 1946).

Some practical suggestions on care of combers. TTD:4-46.

CARDING. I. Marsden (to Platt Bros. & Co., Ltd.). Brit. P. 571 386, 571 550. *Textile Mfr. 72,* 55-6 (Jan. 1946).

The roller and clearer carding engines have a variable speed drive so that the speed of the workers can be varied without alternating relative speeds of other parts. TTD:4-46.

Spinning — III 2

ADAPTING COTTON SPINNING. Cotting spinning process and its adaptability to other fibers. E. C. Gwaltney, Saco-Lowell Shops. *Textile Bull. 69,* No. 10, 17-18, 56-8 (Jan. 15, 1946).

Adaptability of the cotton system to spinning other fibers, particularly rayon staple and wool, is surveyed generally. Inadequate testing methods are considered a hindrance. Static electricity presents probably the most serious difficulty in spinning synthetics. In drafting, determining the range of staple length is important, 2.5" probably being best for synthetics. TTD:4-46.

SPINNING overseers should review twist fundamentals. F. H. Gunther & Marcus Gross. *Textile World 96,* No. 1, 98-9, 180, 182 (Jan. 1946).

A twist conversion chart is helpful and time saving when there are frequent twist changes in yarn spinning. Determination of the twist constant is described and demonstrated by formula. TTD:4-46.

SPINNING FRAME. Threlfall's ring spinning frame. Anon. *Textile Weekly 36, 37,* 1074, 1076, 1078, 1080, 22, 72, 74 (Dec. 7, 14, 1945; Jan. 4, 11, 1946.)

The ring spinning frame, its invention and improvements, is reviewed. TTD:4-46.

SPINNING. Henry M. Bacon (to Dayton Rubber Mfg. Co.). USP 2 393 953, Feb. 5, 1946.

An improved cot for spinning rolls, preferably made of "Stiflex" (a rubber composition having fine textile fibers), has a roughened surface that gives good gripping action. Eyebrowing, and consequent forming of slugs (of frequent occurrence with the use of leather cots, as heretofore), is prevented. TTD:4-46.

STRETCHING ARTIFICAL YARN. Theron G. Finzel (to E. I. duPont de Nemours & Co.). USP 2 394 540, Feb. 12, 1946.

Cellulose acetate yarns may be heat-treated and stretched by flattening the filaments into a ribbon and passing over a heated roll. This process increases tenacity from 1.4-1.7 to 2.5 g/denier and improves handle. TTD:4-46.

SPINNING FRAMES. W. S. Suffern (to Fairbairn Lawson Combe Barbour, Ltd.). Brit. P. 570 610. *Textile Mfr. 72,* 52 (Jan. 1946).

A double-sided frame spins yarns from slivers contained in cans. TTD:4-46.

SPINNING. T. S. Whittle, T. S. Turner, & E. S. Alexander. Brit. P. 571 427. *Textile Mfr. 72,* 55-6 (Jan. 1946).

Friction is reduced and vibration eliminated by improved bearings on doubling and spinning machinery. TTD:4-46.

ORGANIZATSIYA TRUDA VATERSCHCHITSY I TKACHA NA KHLOPCHATOBUMAZHNOI FABRIKE. (ORGANIZATION OF WORK OF THE RING SPINNING FRAME OPERATOR AND OF THE WEAVER IN THE COTTON MILL). V. A. Borodin; 1945; 52 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

OSNOVY PRYADENIYA (FOUNDATIONS OF SPINNING). V. I. Budnikov, I. V. Budnikov, V. E. Zotikov, N. A. Kanarskii & A. P. Pakov. Part I (of 2); 1944; 318 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Rayon III 2 d

RAYON SPINNING. Archibald S. Hunter (to E. I. duPont de Nemours & Co.). USP 2 391 973, Jan. 1, 1946.

By means of a gear pump capable of delivering pulsating variations at 400 times per min., artificial filaments of irregular denier may be spun. TTD:4-46.

RAYON TYPE YARNS. Edgar H. Schmidt (to E. I. duPont de Nemours & Co.). USP 2 392 268, Jan. 1, 1946.

In spinning a yarn such as viscose rayon, an improved method of winding consists of a series of yarn advancing rollers (yarn forwarding, waste and breaker rollers). TTD:4-46.

VISCOSE RAYON SPINNING. Dan'l. S. Dawson (to Courtaulds, Ltd.). USP 2 393 595, Jan. 29, 1946.

The humidity of the air during spinning of viscose filaments is lowered appreciably by enclosing the spinning machine. The desired humidity needed to avoid crystallization of the Na_2SO_4 (or other metallic salt) on the thread, is maintained by a water vapor spray in the enclosed machine. TTD:4-46.

VISCOSE RAYON SPINNING. Paul H. Schlosser & Kenneth R. Gray (to Rayonier, Inc.). USP 2 393 817, Jan. 29, 1946.

In the shredding, filtering, and spinning of viscose, addition of polyethylene oxide improves the alkali cellulose reaction with carbon bisulfide and reduces the amount of carbon bisulfide needed. TTD:4-46.

VISCOSE RAYON SPINNING. Frederick R. Millhiser (to E. I. duPont de Nemours & Co.). USP 2 395 136, Feb. 19, 1946.

An improved method of rayon spinning consists in drawing the yarn through a V-shaped groove under the impulse of a fine jet of the coagulating liquid. TTD:4-46.

YARN STRETCHING. F. B. Hill (to Brit. Celanese, Ltd.). Brit. P. 570 588. *Textile Mfr. 72,* 52 (Jan. 1946).

Cellulose acetate yarns are stretched in a steam chamber. TTD:4-46.

Winding III 3

TENSION AND DENSITY control. Anon. *Am. Wool Cotton Reptr. 60,* No. 2, 15, 17 (Jan. 10, 1946).

Combined tension and density control on a precision winder (Kidde) is specially adapted to winding elastic yarns and dye tubes. TTD:4-46.

WINDERS. Machines and processes. Anon. *Am. Wool Cotton Reptr. 60,* No. 3, 17, 19 (Jan. 17, 1946).

Improvements in winders are discussed. TTD:4-46.

YARN TENSIONING. Fritz Lambach & Walter Siegel (to Robt. Reiner, Inc.). USP 2 393 995, Feb. 5, 1946.

A yarn tensioning device adjustable to yarns for different sizes and qualities has a support with a number of pins around which yarn is trained. TTD:4-46.

YARN WINDING. Warren A. Seem. USP 2 394 639, Feb. 12, 1946.

During any shrinking process of yarn (natural or artificial) wound in a package, a corrugated paper collapsible core permits a more uniform shrinkage throughout the package than is possible on prior non-collapsible cores. TTD:4-46.

YARN WINDING. Edw. J. Abbott, Winthrop L. Perry & Jos. E. Ring (to Abbott Machine Co.). USP 2 395 028, Feb. 19, 1946.

A yarn winder has an improved bobbin-supplying mechanism and an automatic stop device. TTD:4-46.

YARN WINDING. Louis M. Cotchett; Louis M. Cotchett, Lester Campbell, Ferdinand F. Stange & Alfred W. Arterton, USP 2 395 465 (to Foster Machine Co.). USP 2 395 462-3-4-5, Feb. 26, 1946.

In a yarn winder improvements are made in the yarn supply mechanism: (1) A selectively operated bobbin holder doffs only those bobbins from which yarn is not drawn. (2) An exhausted bobbin is automatically disposed of and a new bobbin supplied. (3) An automatic tension control introduces a yarn loop drawn between the bobbin and the package. (4) By use of a blower the yarn end of a package is automatically united with that of the bobbin. TTD:4-46.

YARN WINDER. Pacific J. Thomas (to U. S. Textile Machine Co.). USP 2 395 521-2, Feb. 26, 1946.

In order to reduce yarn breakage from the jerking action and yarn slackening that frequently result from "cross-over", a winder has an improved variable stroke yarn feeder in combination with a rotary receiver on a movable mounting. TTD:4-46.

WINDING. C. B. Cummins. Brit. P. 570, 980. *Textile Mfr. 72,* 54 (Jan. 1946).

A spring steel wire secured to the boss end of the jigger prevents pulling out of cop skewers (as occurs at times in winding coarse yarn spun on paste bottom cops). TTD:4-46.

WINDER. B. & E. Carter. Brit. P. 571 456. *Textile Mfr. 72,* 56 (Jan. 1946).

The bobbin guide of a winder is on a pivot adjustable for length of traverse, pitch, and amount of dwell at each end of the bobbin. TTD:4-46.

YARN HOLDER. Wm. R. Rosedale (to Freeland Spool & Bobbin Corp.). Can. P. 432 951, Feb. 5, 1946.

A yarn cake holder consists of a grooved tube mounted in a circular plate. TTD:4-46.

WINDER. Howard E. Swift & Edw. R. Davis (to Foster Machine Co.). Can. P. 433 132, Feb. 19, 1946.

An improved yarn winder has a movable frame and reciprocating guide so that a fixed angle is maintained between the yarn path and package surface. TTD:4-46.

PROIZVODSTVO PRYAZHI DLYA AVTOKORDA. (PRODUCTION OF SPUN YARN FOR TIRE CORD). N. T. Pavlov; 1944; 47 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Yarn processing III 4

BOBBINS. Strong yarns require special filling bobbins. H. E. Wenrich *Textile World 96,* No. 1, 127, 182, 184, 186 (Jan. 1946).

Use of proper bobbins and replacement of worn bobbins will forestall loom stoppages. TTD:4-46.

COP PACKING. Reducing effort by standardization. A. Crook. *Textile Mfr. 72,* 8, 17 (Jan. 1946).

A job analysis reveals a considerable saving of effort is possible in cop packing by standardized methods and boxes. TTD:4-46.

FANCY YARNS. Construction of fancy yarns. Walter Needham, Drummondville Cotton Co., Ltd. *Can. Textile J. 63,* No. 1, 34-5 (Jan. 11, 1946).

Mixture and fancy loop yarns and special yarns such as slub, gimps, snail, snarl, etc., are briefly described. Calculating methods for obtaining resultant counts are given. TTD:4-46.

JACKSPOOL STRIPPING machine. Anon. *Cotton* (Atlanta) *110,* No. 1, 130 (Jan. 1946).

A motor-driven machine with revolving knife is pushed along the spool by the operator to cut waste yarn. TTD:4-46.

PILE FABRIC YARNS. Spinning yarns for pile fabrics. Frederick C. Naylor, Jno. H. Beaver, Ltd. *Wool Record & Textile World 69,* 82-3, 85 (Jan. 10, 1946).

Yarns for pile fabrics should be regular and smooth with an inherent fullness and proper stand. TTD:4-46.

RESIN TREATMENT machinery. Anon. *Am. Wool Cotton Reptr. 60,* Nov. 3, 15-16 (Jan. 17, 1946).

A machine to fiber-bond yarns (synthetic and natural) and rovings is announced by Dan River Mills. TTD:4-46.

SPINNING. Building ring frame packages. Anon. *Can. Textile J. 63,* No. 1, 41-2 (Jan. 11, 1946). Reprinted from *Traveler* No. 113 (Oct. 1945).

Practical suggestions for avoiding sluffing off during bobbin building are offered. Too light a traveler and filling the quill above the top ring are 2 major causes of sluffing off. TTD:4-46.

YARN SPLICING. Knotless yarns. Anon. *Indian Textile J. 56,* 366-7 (Jan. 1946).

Knotless yarn may be produced by a new machine (illustrated) of Joseph Stubbs, Ltd., Manchester. Specially designed spindles, electrically driven, untwist or retwist the 2 threads, the direction of rotation being controlled by a simple switch. On 3/20 counts an average of 50 splicings per hour is possible. TTD:4-46.

YARN CUTTING THIMBLE. Jno. S. Smith (to Botany Worsted Mills). USP 2 392 885, Jan. 15, 1946.

A thimble worn on the finger of an operator's hand cuts yarn easily and quickly during the weaving process when excess knot ends or broken threads require cutting. TTD:4-46.

ROPE SPLICING. Venancio Adrias, II (½ to Otis L. Williams, Jr.). USP 2 394 884, Feb. 12, 1946.

A hand fid expedites rope splicing and is adapted for rapid repair operations as the fid is completely movable through the rope and need not be retracted once the splicing has begun. TTD:4-46.

CELLULOSE YARNS. Rollin F. Conaway (to E. I. duPont de Nemours & Co.). USP 2 395 396, Feb. 26, 1946.

In order to prevent the sticking together of cellulose derivative filaments and formation of coarse monofils, the yarn is coated, prior to stretching, with an inert water-soluble salt (e. g. NaCl) about 0.5-10% and a binding agent 0.1-2%, the salt having a melting point above the heat-stretching temperature of the yarn. After stretching the coating is removed by washing. TTD:4-46.

YARN TENSIONING. A. Davenport (to E. Scragg & Sons, Ltd.). Brit. P. 570 794. *Textile Mfr. 72,* 54 (Jan. 1946).

A ring doubling frame has an improved yarn tensioning device consisting of a rotatable pulley mounted on a spindle. Tangled or broken ends are easily removed. TTD:4-46.

Yarn products **III 5**

RAYON TIRE CORD. Place of high tenacity rayon in tires. Anon. *Am. Wool Cotton Reptr. 60,* No. 3, 11-12, 50-1 (Jan. 17, 1946).

Rayon in tire cords (generally truck) is discussed. An important property of rayon is its increase in strength at higher temperatures. TTD:4-46.

NYLON WIRE COVERING. G. Loasby & L. Pownall (to Brit. Nylon Spinners, Ltd.). Brit. P. 571 566. *Textile Mfr. 72,* 69a (Jan. 1946).

A twistless multifilament cold-drawn nylon yarn can be used for wire- and cable-covering. TTD:4-46.

Coated products **III 6 a**

COATED YARN. Lincoln T. Work & David L. Mathias (to Metal & Thermit Corp.). USP 2 395 157, Feb. 19, 1946.

A uniform asbestos coated yarn with good tensile strength consists of a cotton core with short asbestos fibers bound to it, which may be used for electric arc welding electrodes. The % composition of this yarn is: asbestos 50-90, cotton 5-40, and sodium silicate 2-10. TTD:4-46.

PLEXON—Plastic coated yarn. Anon. *Chemurgic Digest 5,* 42-3 (Jan. 15, 1946).

Plexon (plastic coated yarns of cotton, rayon, fiber glass, silk, etc.) can be woven, power loomed, knitted, braided, knotted, twisted and crocheted. Its diameters range at present from 0.005-0.12 in. TTD:4-46.

YARN TO FABRIC IV

Warp sizing **IV 2**

MANUFACTURE OF SIZING COMPOUNDS and sizing viscose and acetate yarn. Edgar S. Genstein & S. Newman. *Warp Sizing Specialist, 1946,* 1-3 (Feb.).

Preparation of warp sizing mixes and their application to yarn must be closely controlled to give best results. Factors affecting the quality of sizing are discussed.
LCL TTD:4-46.

SIZING. Primenenie gliny v kachestve shlikhtoval'nogo materiala. (Application of clay as a warp size material). N. N. Voznesenskii and V. N. Polunina, Chemical Laboratory of the Worker's Order of the Red Banner. *Tekstil' naya Prom.* No. 2-3, 19-22 (Feb.-Mar. 1945).

As a result of experiments in the use of clay for warp sizing it is found the fabric strength is increased an average of 21-25% compared to fabrics of soft yarns. A warp of smooth, even surface is obtained. Dyeing qualities and color fastness are not impaired. TTD:4-46.

Weaving **IV 3**

WEAVING. Training of weavers. Anon. *Fibres 7,* 17-20 (Jan. 1946).

Broad outline of introductions for weavers is given. Certain special features are considered: tying knots, faulty selvedge, dirty weft, oil marks, and thinness. TTD:4-46.

WEAVING. Various reasons for broken picks. H. E. Wenrich. *Rayon Textile Monthly 27,* 28-30 (Jan. 1946).

Numerous motion settings, related to the interlocking of warp and filling yarns, are given as part of the reasons for jerk-ins and broken picks. Practical suggestions for correcting these difficulties are offered.
LWR TTD:4-46.

LOOM REPLENISHING. Michael Kazamias & Frank Gubala. USP 2 395 188, Feb. 19, 1946.
In order to prevent breakage of filling in transferring from feeder to shuttle, an improved support keeps the filling aligned with the shuttle end and out of the path of the picker. TTD:4-46.

WEFT THREAD CUTTER. Sulzer Frères, S. A. Brit. P. 571 341. *Textile Mfr. 72,* 55 (Jan. 1946).

Weft threads that project from the edge of woven fabrics are first bound with 2 sets of binding threads and then cut between these inner and outer binders while they are under tension. TTD:4-46.

Looms **IV 3 a**

AUTOMATIC LOOMS in the linen history. Anon. *Fibres, Fabrics & Cordage 13,* 21-2, 24 (Jan. 1946).

Because breakage ratio of most flax yarns is high, automatic weaving of flax is not considered economically suitable. TTD:4-46.

LOOM CRAFT. IV. Banging-off and lashing-in. V. Box marks and weft control. W. Middlebrook, Brocklehurst-Whiston Amalgamated, Ltd. *Textile Mfr. 71,* 416-8, 455-7 (Oct., Nov. 1945).

Reasons for shuttle stoppage in the shed are discussed and some remedies are described for looping at the selvedge and for lashing-in, a defect to which high-twist crepe yarns and soft clinging yarns are especially liable. TTD:4-46.

LOOM MAINTENANCE. Loom installations and check-ups. H. E. Wenrich. *Textile Bull. 69,* No. 8, 9; 30, 32, 14-15 (Dec. 15, 1945, Jan. 1, 1946).

Even new looms need alterations and adjustments; all looms require check-ups. Suggestions are given to fixers regarding necessary upkeep of looms. Exact reed control is needed. Loom leveling should be checked. TTD:4-46.

Loom parts **IV 3 b**

MAPLE SHUTTLES. Tests show open-grown sugar maple makes good shuttle. Benson H. Paul & Martin E. Baudendistel, U. S. Forest Service. *Textile Age 10,* No. 1, 56, 58 (Jan. 1946).

Open-grown sugar maple is found satisfactory to replace dogwood for loom shuttles, giving a high density wood. TTD:4-46.

LOOM FRAMES. Frank W. Hollingsworth, Jr. (to Walker Mfr. Co., Inc.). USP 2 394 178, Feb. 5, 1946.

An improved hook supports a pair of heddle bars in the top of a loom frame which coöperates with another pair in the lower part of the frame alternately to elevate and depress a set of heddles. TTD:4-46.

WARP BEAM. Stanley N. McCaslin (to Crompton & Knowles Loom Wks.). USP 2 394 463, Feb. 5, 1946.

An improved warp beam head for looms has clamps that prevent lengthwise movement and sidewise twisting, so that tight and loose selvage warps are avoided. TTD:4-46.

LOOM PARTS. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 395 436, Feb. 26, 1946.

A weft replenishing loom has an improved pneumatically operated waste thread accumulator which controls the two threads of the depleted and the new bobbin during bobbin transfers. TTD:4-46.

Control devices **IV 3 c**

LOOM CONTROLS. Yervant H. Kurkjian. USP 2 395 360, Feb. 26, 1946.

Uniform warp tension on the loom is maintained by an improved automatic let-off control for the warp beam. TTD:4-46.

WARP STOP MOTION. H. R. Hilfiker, H. Hilfiker & F. Dürst. Brit. P. 570 639. *Textile Mfr. 72,* 52 (Jan. 1946).

An automatic stop motion indicates broken warp threads by means of 2 rows of metal riders which when contacted by broken threads activate a stopping relay. TTD:4-46.

OILING ON LOOMS. F. Blomley (to Tweedales & Smalley, Ltd.). Brit. P. 571 194. *Textile Mfr. 72,* 54-5 (Jan. 1946).

An improved oil retainer mounted on the bobbin driving wheel of a speed frame is in contact with the bearing surfaces and prevents waste. TTD:4-46.

STOP MOTION. J. P. Mackie (to J. Mackie & Sons, Ltd.). Brit. P. 571 195. *Textile Mfr. 72,* 55 (Jan. 1946).

An automatic stop motion on a lapping machine consists of a tappet device actuated by a pivoted weighted lever that normally rests against the core material. TTD:4-46.

Fabric construction **IV 3 d**

COTTON DUCK. Definitions of cotton duck. J. P. Cotton, Wellington, Sears & Co. *Nat'l. Canvas Goods Mfg. Rev. 21,* No. 10, 36-7, 46 (Jan. 1946).

Cotton duck is briefly discussed under 3 heads; single filling, double filling, and army duck. Specifications and uses of each kind are noted. TTD:4-46.

FABRICS for the footwear industry. H. Bradley, Brit. Boot, Shoe & Allied Trades Research Ass'n. *J. Textile Inst. 37,* P9-11 (Jan. 1946).

An address considers, under three heads (1) physical requirements in shoe fabrics, (2) chemical requirements, (3) specifications and standards. TTD:4-46.

FINE WORSTED COATINGS. Chas. Smith. Jno. Smith & Sons, Ltd. *Wool Record & Textile World 69,* 87, 89 (Jan. 10, 1946).

A lecture discusses top selection for fine coating yarns. Uniform length and fineness of fiber are important, and particular attention should be paid to drawing and spinning. TTD:4-46.

RAYON DUCK. New rayon duck fabric a viscose material. Anon. *Am. Wool Cotton Reptr. 60,* No. 1, 11-12, 22 (Jan. 3, 1946).

Rayon duck fabrics are among the newest rayon cloths and have a number of desirable characteristics; regularity, strength, flexibility, ease of handling in finishing and appearance. TTD:4-46.

WEAVE DESIGNS. Fancy worsted for export (styles and coloring); Saxony costume tweeds; developments in weave design; utility tweeds for men's wear. Portex. *Wool Record & Textile World 69,* 24-5, 27, 79, 81-2, 131, 133, 187-8 (Jan. 3, 10, 17, 24, 1946).

Designs for fancy worsted fabrics, largely in the lighter weights, are described. The Saxony tweeds, from a fabric of medium count, are easily finished and adaptable over a wide style range. Diversity and novelty in weave designs are attainable by manipulating the drafting and pegging arrangements on dobby

looms. Colors in patterns are important features of design. TTD:4-46.

WEAVING FINE WORSTED CLOTHS. Wm. L. Stuart, Halifax Technical College. *Wool Record & Textile World 69,* 86-7 (Jan. 10, 1946).

A lecture. TTD:4-46.

CREPE FABRICS. Richard R. Sitzler & Jos. E. Bludworth (to Celanese Corp. of Am.). USP 2 394 212, Feb. 5, 1946.

An improved crepe effect in woven fabrics is produced with cellulose derivative yarns which are permanently delustered, having no tendency to be relustered upon application of heat and moisture. Instead of delustering with certain pigments, which weaken the yarns, delustering is carried out by addition of ethylene oxide polymers to the spinning solutions. Increased dye affinity is found to result. Example: 5% ethylene oxide polymer is added to a solution of cellulose acetate in acetone in a ratio 1-3. This yarn has tenacity of 1.32 g.; pigmented yarn, 1.05 g. TTD:4-46.

POLYVINYLIDENE CHLORIDE MONOFILS. Chas. Strauss (to Arvey Corp.). Can. P. 433 241, Feb. 26, 1946.

A flexible plastic screen fabric woven of polyvinylidene chloride monofils is weather- and moisture-resistant and of high tensile strength. TTD:4-46.

Weave defects — IV 3 e

UNEVEN YARNS. Faults in woolen fabrics and their origin. Jno. Nelson. *Textile J. Australia 20,* 536-7 (Jan. 1946).

Faults in the woven fabrics (often assumed to be a mechanical error in weaving) are frequently to be traced to uneven yarn diameter. The varying tension ratio of the spindle bands will account for this. TTD:4-46.

WEAVE-ROOM SECONDS. Control of weave-room seconds requires systematic check ups. Henry I. Jackson. *Textile World 95,* No. 12, 102-3 (Dec. 1945).

Notation on a report of the loom and weaver responsible for a second will aid in analyzing efficiency of machine and worker. TTD:4-46.

Knitting — IV 4

PRINCIPLES OF KNITTING. Wm. E. Shinn, School of Textiles, N. C. State College, *Knitter 9,* No. 2, 24-5, 56; No. 3, 22, 24, 26; No. 4, 30; No. 5, 27; No. 6, 32, 35; No. 7, 27-8; No. 8, 26, 29; No. 9, 33-4; No. 10, 33-4; No. 11, 40, 66-8; No. 12, 28-30, *10,* No. 1, 24, 57 (Feb.-Dec. 1945; Jan. 1946).

A course of instruction in knitting for textile schools,

with chapters on fabric construction, mechanism, circular latch needle hosiery machines, hosiery ribbers, the sinker, fashioning, machine gearing, reciprocating motion and clutch action, needle selection, switch cams and picker narrowing action. Reinforcing (or splicing) yarn is often needed; then the stitch is slackened. Types of knitting yarns are discussed and include mercerized cotton, rayon, spun silk, wool and nylon. TTD:4-46.

HOSIERY KNITTING. Paul L. Thurston & David Nagley (to Interwoven Stocking Co.). Can. P. 433 140-1, Feb. 19, 1946.

An improved method of 1 x 1 rib knitting produces a seamless stocking with Links-Links pattern in the leg. TTD:4-46.

Knitting machines — IV 4 a

WARP KNITTING MACHINE. Anthony F. Fiorentino (to Alfred Hofmann & Co.). USP 2 394 161, Feb. 5, 1946.

In a warp knitting machine which knits tricot, or ribbed, fabrics the method of feeding and supplying yarn is improved so that there is accurate yarn feed over a floating yarn guide to the knitting point. TTD:4-46.

KNITTING MACHINE. Oscar Fregeolle (to Hemphill Co.). Can. P. 432 956, Feb. 5, 1946.

More effective separation of 2 feeding yarns by projecting sinker nibs between them improves the knitting method on an independent needle machine. TTD:4-46.

Knitting machine parts — IV 4 b

KNITTING MACHINES. Eugene St. Pierre (to Hemphill Co.). USP 2 394 339, Feb. 5, 1946.

A gap closer for independent latch needle machines consists of a movable latch ring in a carrier ring. The need of lever systems coordinated with the carrier ring is eliminated without danger of bending or breaking the latches of the needles. TTD:4-46.

KNITTING MACHINE PART. Jos. Wawzonek & Eugene St. Pierre (to Hemphill Co.). Can. P. 432 957, Feb. 5, 1946.

An adjustable carrier ring has yarn levers above reciprocating cam supports in an independent needle knitting machine. TTD:4-46.

Control devices — IV 4 c

KNITTING CONTROL. H. H. Holmes (to Wildt & Co., Ltd.). Brit. P. 570 759. *Textile Mfr. 72,* 53 (Jan. 1946).

A fabric tensioning device on a knitting machine is controlled by a pouch compensating mechanism. TTD:4-46.

KNITTING MACHINE CONTROL. W. A. Cooper (to W. Cotton, Ltd.). Brit. P. 570 933. *Textile Mfr. 72,* 54 (Jan. 1946).

Even drawing off of fabric on a straight bar machine is accomplished by means of take-up straps attached to a rotatable beam roller coupled to a secondary roller. TTD:4-46.

KNITTING STOP MOTION. J. T. Saunders (to Kangol Wear, Ltd.). Brit. P. 571 346. *Textile Mfr. 72,* 55 (Jan. 1946).

In knitting berets and the like on a flat single bed machine an improved stop motion eliminates stopping of the machine for insertion of a secondary thread. TTD:4-46.

Fabric construction — IV 4 d

KNIT SOCKS. Versatile layout used by Georgia mill for knit work socks. Anon. *Textile World 96,* No. 1, 105, 198, 200 (Jan. 1946).

The mill layout for sock knitting on automatic latch needle machines is described. TTD:4-46.

TUBULAR NET FABRICS. Robt. Shaw & Co., Ltd. Australian P. 120 499. *Textile J. Australia 20,* 530 (Jan. 1946).

A new fabric (as for hairnets) is made on a twist lace machine which closes the fabric crosswise by joining the back and front faces. The fabric is tubular with both ends closed by pillaring and then cut at one side. TTD:4-46.

REPAIRABLE SOCK. Patons & Baldwins, Ltd. Australian P. 120 389. *Textile J. Australia 20,* 530 (Jan. 1946).

A knitted sock permits easy removal of a worn-out heel for replacement with a new one. TTD:4-46.

KNIT PATTERNS. E. Wildt, H. H. Holmes & J. C. H. Hurd (to Wildt & Co., Ltd.). Brit. P. 570 930. *Textile Mfr. 72,* 54 (Jan. 1946).

An interlock structure with embroidery plating consisting of lap stitch and loop effects along with plain stitch portions gives to a knitted fabric a novel pattern. TTD:4-46.

TEKNOLOGIYA POSHIVKI TRIKOTAZHA. (TECHNOLOGY OF SEWING OF HOSIERY). N. Nikolaev; 1945; 359 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Knitting defects — IV 4 e

KNITTING DEFECTS. Distorted loops avoided by knitting machine adjustment. Julian W. Hughes. *Textile World 95,* No. 12, 123, 125, 182, 184 (Dec. 1945).

"Washboard" knitting, not so pronounced on single feed machines, may occur during reciprocating knitting (as in gores) rather frequently. Adjustment of stitch cams will remedy this. TTD:4-46.

Pile fabrics — IV 5

PILE FABRICS. Manufacture of pile fabrics. P. E. Dyson, Dyson, Hall & Co., Ltd. *Wool Record & Textile World 69,* 85-6 (Jan. 10, 1946).

A lecture. TTD:4-46.

PILE FABRICS. V. A. Victor. Brit. P. 571 444. *Textile Mfr. 72,* 56 (Jan. 1946).

A pile fabric resembling a natural pile is constructed with a backing adhesively coated, in which are embedded the free ends of fibers such as of animal pelt or fur. TTD:4-46.

Narrow fabrics — IV 6

MOLDED BELT. Raymond S. Carter (to Wingfoot Corp.). Can. P. 433 187, Feb. 19, 1946.

A power transmission belt consists of vulcanized fabric and rubber with angular grooves. TTD:4-46.

Fabric processing — IV 8

HOSIERY. Five M's (men, management, materials, machines & mistakes) influence hosiery production. J. A. Crumley, Hosiery Processing Co. *Textile World 95,* No. 12, 135, 202, 206 (Dec. 1945).

Carelessness in hosiery handling is a more serious matter today than years ago because of the fine, delicate stocking now being produced which requires deft handling. Handling methods in preboarding are suggested for increased production. TTD:4-46.

HOSIERY. Reducing odd pairs in finishing room. Julian W. Hughes. *Cotton* (Atlanta) *110,* No. 1, 157-8 (Jan. 1946).

Practical means of reducing odd pairs in the finishing room are suggested. TTD:4-46.

NAPPED COTTON. Napping needs a measure of performance. Louis C. Tolleson, Union Bleachery. *Textile World 95,* No. 12, 127, 129, 186, 188, 190 (Dec. 1945).

Napping is a relatively expensive operation but greatly increases the heat insulating qualities of fabric. Napped fabrics have a soft handle and are light in weight compared to wool. The napping process varies in different mills, requiring from 3 to 6 runs for the same results. TTD:4-46.

SYNTHETIC FABRIC SEAMER. Leo Perry, USP 2 394 473, Feb. 5, 1946.

A seaming machine having a fixed and a movable element (with a heating unit) joins pieces of synthetic fabrics by applying heat and pressure. It is useful for producing waterproofed garments. TTD:4-46.

Coated products **IV 9 b**

COTTON FABRIC. Howard Snow (to Southern Friction Materials Co.). Can. P. 433 162, Feb. 19, 1946.

A flexible cotton base fabric is made moisture- and wear-resistant by impregnating and coating with a thermosetting and hardening material, the hardened material being scraped off to produce a nappy surface. TTD:4-46.

LEATHER SUBSTITUTE. E. E. T. Broden. Swed. P. 114 456, Oct. 26, 1942; *Svensk Papperstidning 48,* 357 (July 31, 1945).

A fabric which has been impregnated with a cellulose ester such as nitrocellulose is painted with a non-solvent for nitrocellulose and formed into a sheet which is then treated with a solvent for cellulose esters, after which the solvent is allowed to evaporate. TTD:4-46.

Laminates **IV 9 c**

KNITTED FIBERGLAS FABRIC. Anon. *Fibre & Fabric 99,* No. 3179, 3 (Jan. 5, 1946).

A knitted Fiberglas cloth, to be used with low-pressure resins to produce plastic laminates, is knitted on a tubular machine. TTD:4-46.

LAMINATING PRESS. Anon. *Modern Plastics 23,* No. 5, 184 (Jan. 1946).

A 10-opening 2700-ton steam platen press for laminating, curing and polishing plastic sheets to a uniform thickness is announced. TTD:4-46.

Specialty uses **IV 9 d**

FABRIC TUBES. S. Broughton (to T. French & Sons, Ltd.). Brit. P. 571 237. *Textile Mfr. 72,* 55 (Jan. 1946).

Fabric tubes, to carry hot air as deicers on airplanes, contain a series of extra warps singly or in pairs held in place by the weft alone with space being allowed for metal rings. TTD:4-46.

CHEMICAL RAW MATERIALS V

Plastics **V 1**

CELLULOSE ETHERS. On the sol-gel transformation of water-soluble ethylated hydroxyethylcellulose. Sven. Sönnerskog, Mo och Domsjö A/B. *Svensk Papperstidning 48,* 413-6 (Sept. 15, 1945). (In English).

Mixed cellulose ethers obtained by etherifying simultaneously with ethylene oxide and ethyl chloride can be evaluated as to technical utility by their hydration temperature (highest temperature at which the cellulose derivative will go into solution) and their coagulation temperature (at which a sufficiently viscous solution is converted to a solid gel). Both of these properties depend strictly on the glycol content of the cellulose ether if the alkali cellulose employed in the process is the same as is customarily used in making rayon. TTD:4-46.

FLASTIC DEVELOPMENTS for peacetime textiles. Donald H. Powers. *Textile Bull. 69,* No. 10, 31-2 (Jan. 15, 1946).

The textile industry as a market for plastics is surveyed. TTD:4-46.

PLASTIC MOLDS. Robt. A. Daily & Geo. K. Shroyer (to General Motors Corp.). Can. P. 433 019, Feb. 12, 1946.

An acid-resistant molding compound consists of hydrolyzed fibrous material with a cellulose: lignin ratio of 65: 35 to 57: 43, plasticized with cresylic formaldehyde resin. TTD:4-46.

PLASTICS. What's ahead for 1946. Anon. *Modern Plastics 23,* No. 5, 91-106 (Jan. 1946).

A survey of the plastics field gives the anticipated uses for plastics in all forms for the year. TTD:4-46.

PLASTICS. Advances in plastics during 1945. G. M. Kline. Nat'l. Bureau of Standards. *Modern Plastics 23,* No. 5, 161-4 (Jan. 1946).

A review of plastics developments published in 1945 (287 references). TTD:4-46.

PLASTICS STRUCTURE. X-ray studies of the structure of plastics. W. T. Astbury, Leeds Univ. *J. Soc. Dyers Colourists 62,* 3 (Jan. 1946).

A lecture on plastic properties with 12 x-ray diffraction patterns. Aggregation and orientation of the molecules are discussed. TTD:4-46.

POLYVINYL ALCOHOL in Germany. G. M. Kline, Nat'l. Bureau of Standards. *Modern Plastics 23,* No. 5, 165-7 (Jan. 1946).

Figures on German production are given. Acid and alkaline hydrolysis processes of manufacture are discussed. TTD:4-46.

BRITISH PLASTICS YEARBOOK, 1945. Iliffe & Sons, Ltd., London; 1945; 494 pages; price 20s.

Reviewed in *Modern Plastics 23,* No. 5, 182 (Jan. 1946). TTD:4-46.

LABORATORY MANUAL OF PLASTICS AND SYNTHETIC RESINS. G. F. D'Alelio. John Wiley & Sons, New York City, 1945; 134 pp.; price $2.00. TTD:4-46.

PLASTICS — DIISOCYANATES AND POLYURETHANES, ETHYL CELLULOSE, BENZYL CELLULOSE, ACETYL CELLULOSE. Combined Intelligence Objectives sub-Committee Report No. XXII-16; price 1s 1d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

PLASTICS: WHAT EVERYONE SHOULD KNOW. Bernard Wolfe. Bobbs-Merrill Co., Inc. New York City; 189 pp.; price $2.50.

Reviewed in *Modern Plastics 23,* No. 5, 182 (Jan. 1946). TTD:4-46.

TEKNOLOGIYA ZAMENITELEI KOZHI. II. ZAMENITELI NA TKANEVOI OSNOVE S PRIMENENIEM KAUCHUKOV I PLASTMASS. (TECHNOLOGY OF THE SUBSTITUTES OF LEATHER. II. SUBSTITUTES ON A TWILL WARP WITH APPLICATION OF INDIA RUBBER AND PLASTIC COMPOSITION. P. T. Pavlovich, editor; 1944; 264 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

TRUDY PERVOI I VTOROI KONFERENTSII PO VYSOKOMOLEKULYARNYM SOEDINENIYAM. (WORK OF THE FIRST AND SECOND CONFERENCES ON MACROMOLECULAR COMPOUNDS). 1945; 138 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Synthetic resins — V 1 c

PLASTICIZING RESINS. Anon. *Chem. Industries 58,* 84, 86 (Jan. 1946).

Two new resins are waterwhite and nonyellowing, compatible with waxes and suitable for fabric coatings, among other uses. TTD:4-46.

RESIN SOLUTIONS. Determination of total solids in resin solutions. C. Dona McKinney Jr., Ernest Turk & W. E. Shafer. *Ind. Eng. Chem. Analyt. Ed. 18,* 14-6 (Jan. 1946).

A new technique for the determination of total solids in solutions of synthetic resins in nonaqueous solvents is presented. The sample of resin solution is dissolved in a high-boiling solvent (dibutyl phthalate), the resulting solution is heated under vacuum to remove the original resin solvent and the loss in weight observed. By using a polyethylene glycol the method might be applicable to aqueous solutions of resins.
LGO TTD:4-46.

FABRIC COATING. H. Snow. Brit. P. 570 892. *Textile Mfr. 72,* 54 (Jan. 1946).

A woven fabric is made moisture- and wear-resistant by coating with a thermo-setting synthetic resin.
TTD:4-46.

Elastomers — V 2

NONSULFUR VULCANIZATION. II. Turner Alfrey & H. Mark, Polytechnic Institute of Brooklyn, J. G. Hendricks, National Lead Co., & Robert M. Hershey, Allied Chemical & Dye Corp. *India Rubber World 113,* 653-8 (Feb. 1946).

The physical properties of nonsulfur vulcanizates are generally discussed. Data are presented which indicate that fatty acids or potential water do not appreciably affect the physical characteristics or the rate and extent of change in unsaturation in dinitrobenzene cure. Litharge is found to be necessary in dinitrobenzene cures. Durite S-2666, as a curing agent, gives excellent results with Hycar OS-20 and Hycar OR-15. Durite S-2666 also vulcanizes polyisobutylene, polyvinyl acetate, etc., but not natural rubber, extracted natural rubber, or GR-S.
LWR TTD:4-46.

SYNTHETIC RUBBERS. New synthetic rubbers based on methylpentadiene. F. M. McMillan, E. T. Bishop, K. E. Marple & T. W. Evans. Shell Development Co. *India Rubber World 113,* 663-9 714 (Feb. 1946).

The properties of methylpentadiene monomer and polymer are described. The polymer is described as superior to GR-S in tack, compounding ease and aging.
LWR TTD:4-46.

VINYL RESINS. Am. Viscose Corp. Brit. P. 570 590. *Textile Mfr. 72,* 52 (Jan. 1946).

Vinyl resin filaments and an elasticizer (about 25-40 wt.-%) extruded into an evaporative medium have a rubber-like character. TTD:4-46.

DYEING NYLON. J. H. MacGregor (to Courtaulds, Ltd.). Brit. P. 570 602. *Textile Mfr. 72,* 52 (Jan. 1946).

Nylon fibers containing formaldehyde and cyanamide are dyed with direct cotton dyes. TTD:4-46.

TEKNOLOGIYA RASTITEL'NOGO KAUCHUKA I GUTTAPERCHI (TECHNOLOGY OF VEGETABLE INDIA RUBBER AND GUTTAPERCHA). P. K. Bobkov, V. V. Zhuravlev, A. M. Ignat'ev, & A. A. Nichiporovich; 1944; 240 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Adhesives — V 3

PAPER COATING. Thos. W. Noble. USP 2 394 254, Feb. 5, 1946.

A thermoplastic coating, suitable for an adhesive coating of paper, contains (wt.-%): stearic acid, 55; ethylcellulose, 20; paraffin wax, 25. The coated paper adheres to waxed paper or regenerated cellulose under heat and pressure and is useful as end seals.
TTD:4-46.

EXPANSIBLE CLOTH. Cincinnati Industries, Inc. Brit. P. 571 625. *Textile Mfr. 72,* 69a (Jan. 1946).

An expansible cloth consists of a creping surface discontinuously bound to an adhesive layer.
TTD:4-46.

Surface-active compounds — V 4

DETERGENTS. Evaluation of synthetic detergents. Anon. *Can. Textile J. 63,* No. 2, 44 (Jan. 25, 1946).

Tests should be based on other factors than foaming powers. No one test, however, gives an exact evaluation. The manner and particular conditions of use must govern. TTD:4-46.

SURFACE-ACTIVE AGENTS. Bubbles at work and play. Anon. *Rohm & Haas Reptr. 4,* No. 1, 10-11 (Mar. 1946).

The multiple uses of Triton are described and range from such uses as bubble-blowing to that of fire-extinguishing aid in cotton bale blazes.

TTD:4-46.

SYNTHETIC DETERGENTS. Direct volumetric determination of the organic sulfonate content of synthetic detergents. T. U. Marron & Joseph Schifferli. *Ind. Eng. Chem. Anlyt. Ed. 18,* 49-50 (Jan. 1946).

A simple method for the analysis of materials containing 30-60% of sodium alkyl or alkylaryl sulfonates is presented. The detergent mixture is reacted with p-toluidine hydrochloride in aqueous medium, the sulfonic acid salt of the amine extracted by CCl_4 and titrated with O.1N NaOH which has been standardized against a sample of known organic sulfonate content.

LGO TTD:4-46.

SYNTHETIC EMULSIFYING WETTING AGENTS, DETERGENTS AND SOAP SUBSTITUTES. Combined Intelligence Objectives Sub-Committee Report No. XXVI-2; price 3s 8d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

CHEMICAL PROCESSING VI

LIQUID AGITATORS: Some fundamental factors in choice of liquid agitators. I. S. Brumaguin, Struthers Wells Corp. *Chem. & Met. Eng. 53,* No. 4, 110-4 (Apr. 1946).

The selection of liquid agitator and tank depends upon the characteristics of the material being mixed and the time and cost requirements. Various designs and applications of agitators are discussed.

LCL TTD:4-46.

MIXING LIQUIDS in shallow tanks aided by design analysis: E. S. Bissel, H. J. Everett, J. H. Rushton, Mixing Equipment Co. *Chem. & Met. Eng. 53,* No. 1, 118-9 (Jan. 1946).

Adequate mixing of liquids, particularly at low tank levels, is aided by design of tank and mixer. Suggestions are given for designs and operations.

LCL TTD:4-46.

Preparation VI 1

CLOTH PRINTING speeded by infrared drying aids. Anon. *Textile World 96,* No. 1, 125 (Jan. 1946).

Supplementing existing drying facilities with infrared units increases production in cloth printing up to 50%.

TTD:4-46.

RADIANT HEAT DRYING. Advances in radiant heating. Anon. *Can. Textile J. 63,* No. 2, 41 (Jan. 25, 1946).

Infrared (or radiant heat) drying speeds up drying processes from 20-50%. Delivery of 70,000 BTU per linear foot of generator is possible. No conduction or convection losses are encountered in radiant heat drying. Applications include: tenter frames, dry boxes, slashers, steam cans, singeing, polymerization.

TTD:4-46.

YARN PROCESSING. Desiré C. F. Devos (to Courtaulds, Ltd.). USP 2 395 256, Feb. 19, 1946.

In washing and other treatment of cakes of artificial threads, use of a perforated holder in combination with a thin permeable sheath (e. g. rubber) having fewer perforations than the holder diminishes creasing in the cake and facilitates winding.

TTD:4-46.

FABRIC DRIER. J. Sharpe (to Hunt & Moscrop, Ltd.). Brit. P. 570 774-5. *Textile Mfr. 72,* 53 (Jan. 1946).

An open-width fabric drier consists of 2 chambers separated by a plate, and in each chamber are fans and heating units for drying both sides of the fabric.

TTD:4-46.

LINEN-LIKE COTTON. Rohm & Haas Co. Brit. P. 571 478. *Textile Mfr. 72,* 56 (Jan. 1946).

A linen-like appearance and increased tensile strength are imparted to cellulosic fibers such as cotton by soaking in acrylonitrile and then in a strong hydroxide solution, after which they are washed free of hydroxide and dried. TTD:4-46.

OILING CELLULOSE YARNS. Brit. Celanese, Ltd. Brit. P. 571 490. *Textile Mfr. 72,* 56 (Jan. 1946).

Cellulose derivative yarns and filaments are treated with a lubricating fluid of a mineral oil, a softening agent, an alkylated phenol, a higher fatty acid and an alkanolamine. Example (wt.-%): mineral oil 55.6, oxidized peanut oil 18.5, oleic acid 10.7, 2,4-ditertiary-amylphenol 9.7, triethanolamine 4.95, oleyl alcohol 0.55.

TTD:4-46.

Weighting VI 2

WEIGHTING. Arthur Lyem (to Camille Dreyfus). Can. P. 433 194, Feb. 19, 1946.

Nylon type polymers (yarns, filaments or fibers) are weighted by immersion in $SnCl_4$ solution containing 7% formic acid (sp. gr. 25-40°Be) at about 55°C.

TTD:4-46.

Acid baths VI 4

TIRE CORD. U. S. Rubber Co. Brit. P. 571 358. *Textile Mfr. 72,* 55 (Jan. 1946).

Tire cords treated with a solution of abietic acid derivative containing a tricyclic hydroaromatic condensed nucleus have an increased tensile strength.

TTD:4-46.

Alkali baths — VI 5

COTTON LINTERS AND WOOD PULP. Effect of alkaline pulping on acetylating properties of wood pulp. J. W. McKinney, Brown Co. *Paper Trade J. 122,* No. 4, 58-62 (Jan. 24, 1946).

The cause of haze in cellulose acetate solutions prepared by alkaline pulping is investigated. In order to decide the comparative effect of alkaline cooks on wood constituents, cooks were made on 2 samples of cotton linters (of nitration grade and of acetylation quality). Accompanying tables (13) record data obtained.

TTD:4-46.

Sizing — VI 6

SIZING. Calico Printers' Ass'n. Ltd. Swed. P. Appl. 6114/39, Nov. 30, 1939; *Svensk Papperstidning 48,* 471 (Oct. 15, 1945).

A process for sizing or finishing textile materials with natural or regenerated cellulose. TTD:4-46.

SIZES. Oel- & Chemie Werk A. G. Swed. P. Appl. 5641/43, Aug. 10, 1943; *Svensk Papperstidning 48,* 421 (Sept. 15, 1945).

A method of preparing alkali metal cellulose glycolates which dissolve or swell in water. TTD:4-46.

SIZING PAPER. G. Meyer (to Sichel Werke A.-G.). Swed. P. 114 296, May 26, 1946; *Svensk Papperstidning 48,* 305 (June 30, 1945).

Sizing of paper is improved by adding to the rosin size about 0.5 wt.-% of a salt of cellulose glycolic acid (calculated on the weight of cellulose or pulp).

TTD:4-46.

SIZING. Stidsvigs & Hälsingborgs Limfabriker A/B. Swed. P. 114 845, Aug. 14, 1942; *Svensk Papperstidning 48,* 473-4 (Oct. 15, 1945).

Binders and sizes or adhesives for highly porous sheet materials contain lignin derivatives and a gel of Al hydroxide. The gel serves to control penetration of the size or binder into the fibrous material.

TTD:4-46.

SIZING. Sizing paper: a review. C. A. Gyllenhoff. *Svensk Papperstidning 48,* 291-7 (June 30, 1945).

The theory of sizing has usually been advanced by efforts to explain new discoveries in the practical art. Physical and chemical studies have contributed much, and gratifying results are expected from the pressure on various nations to develop domestic supplies during wartime. TTD:4-46.

Finishing — VI 7

FIBRO FINISHING. Importance of adequate shrinkage in dyeing and finishing Fibro. H. A. Thomas, Courtaulds, Ltd. *Dyer 95,* 41, 43, 45, 47, 65-7 (Jan. 4, 18, 1946).

A lecture reviews dyeing and finishing treatments of Fibro. Qualitative tests for sizes are given for use by finishers. Package dyeing is considered. As Fibro has twice as much water take-up as cotton, it requires more drying; but this drying should be carefully controlled to avoid the harsh, boardy handle that comes from overdrying. TTD:4-46.

FINISHING. New finishing chemical. Anon. *Fibre & Fabric 99,* No. 3179, 8 (Jan. 5, 1946).

Aerotex Softener H is a new chemical of American Cyanamid that controls almost completely the hand of all kinds of fabric, rayon as well as cotton.

TTD:4-46.

RAYON FINISHING. Recent new developments in rayon finishing. A. R. Wachter, Am. Viscose Corp. *Textile Colorist 68,* No. 1, 20-1, 44 (Jan. 1946).

A lecture. TTD:4-46.

RESIN FINISHING. Mechanics of zone control in resin finishing. Kenneth P. Monroe, for Northern N. E. section AATCC. *Am. Dyestuff Reptr. 35,* P13-19 (Jan. 14, 1946). Reported in *Am. Wool Cotton Reptr. 60,* No. 3, 14, 48 (Jan. 17, 1946).

Zone control in the use of resin finishes is studied with respect to its 2 extremes: (1) distribution "in" (throughout the fiber); (2) "on" (around the fiber). Finishes of 3 basic classes are examined, of which these are specific examples: polyvinyl acetate emulsion, urea and melamine resins, and diallyl phthalate. Effects of these finishes on physical properties of fabrics (randomly selected piece goods of wool, cotton, and rayon) are given in graphs, tables, and diagrams.

TTD:4-46.

SHRINKING AGENTS. Frank B. Hill (to Brit. Celanese Ltd.). USP 2 394 772, Feb. 12, 1946.

Cellulose acetate yarn may be shrunk (as for brocade or crepe effects) by immersion in a bath of 64% methylene chloride and 36% ethylene dichloride at 19°C for 20 sec. TTD:4-46.

TEXTILE FINISHING. Geo. P. Vincent & Archie L. Dubeau (to Mathieson Alkali Works, Inc.). USP 2 395 305, Feb. 19, 1946.

In steaming fabrics during finishing, the material is formed into loose accordion-like folds, passed into the steam chamber and then withdrawn. This process reduced creasing and uneven dyeing or bleaching characteristics in cloth. TTD:4-46.

RESIN FINISHING. C. P. Atkinson (to Courtaulds, Ltd.). Brit. P. 570 696-7. *Textile Mfr. 72,* 53 (Jan. 1946).

A formaldehyde treatment, with sodium cetyl sulfate added, improves the raising process in cotton wool, casein or rayon type fabrics. Example: a 100% viscose rayon fabric is scoured, dyed, dried and padded with a liquor of 4% cyanamide, 3% formalin and 2% ammonium thiocyanate (pH 6). TTD:4-46.

FABRIC FINISHING. J. B. Speakman & T. Barr (to Imperial Chemical Industries, Ltd.). Brit. P. 570 883. *Textile Mfr. 72,* 54 (Jan. 1946).

A firmer handle and some crease resistance are imparted to fabrics by polymerization of a vinyl or vinylidene compound in the fibers. TTD:4-46.

CELLULOSE ACETATE YARNS. Robt. W. Moncrieff & Chas. W. Sammons (to Camille Dreyfus). Can. P. 432 974, Feb. 5, 1946.

Artificial yarns and foils are impregnated with 30-55 vol.-% cyclopentanone without stretching. After shrinkage of 2-10%, impregnant is washed out. TTD:4-46.

VISCOSE RAYON FINISHING. Guy H. White (to Cornelius C. Vanderhooven). Can. P. 433 067, Feb. 12, 1946.

Low, even elongation is imparted to viscose rayon yarn during a finishing process in which the dried threads are collected in a parallel relationship on a common beam. TTD:4-46.

COLOR VII

Bleaching VII 1

BLEACHING. Some aspects of peroxide bleaching. —2. W. J. MacNab, Alfred Cotter. *Fibres, Fabrics & Cordage 13,* 16-9 (Jan. 1946).

Piece bleaching of cotton and linen is described. Mixing of bleaching solutions for linen damask, cambric and damask and hucks is outlined. Continuous peroxide bleaching is mentioned as greatly reducing the time factor. TTD:4-46.

PRINCIPLES OF FUR BLEACHING. Wm. E. Austin. *Rayon Textile Monthly 27,* 33-40 (Jan. 1946).

The general principles of fur bleaching are outlined, with emphasis on the complex nature of the material to be bleached. Principles of catalytic bleaching are discussed and an explanation of the general mechanism of catalytic bleaching is offered.
LWR TTD:4-46.

BLEACH. S. H. Persson. Swed. P. Appl. 8023/42, Dec. 22, 1942; *Svensk Papperstidning 48,* 302 (June 30, 1945).

Process for preparation of ClO_2. TTD:4-46.

CHLORITES. J. V. Sevon & F. V. Sundman (to Kymin Osakeyhtiö-Kymmene Aktiebolag). Swed. P. 113 609, July 3, 1944; *Svensk Papperstidning 48,* 178 (Apr. 15, 1945).

Alkali metal chlorites are made by treating ClO_2 in aqueous solution either continuously or batchwise with an alkali metal amalgam. TTD:4-46.

WATERPROOFING. Tootal Broadhurst Lee Co., Ltd. Swed. P. 115 002, Apr. 13, 1943; *Svensk Papperstidning 48,* 501 (Oct. 31, 1945).

Strong highly waterproof paper is made by treating paper or pulp with a solution which is capable of swelling cellulose in presence of a synthetic resin under conditions which would result in mercerization of unprotected cellulose. TTD:4-46.

BLEACHING OF CELLULOSE IN LINTERS. L. Thoria, ICCC Technological Bulletin, Series B, No. 33. Indian Central Cotton Committee, 1945; price 1-0-0 rupee.

Reviewed in *Indian Textile J. 56,* 400 (Jan. 1946). TTD:4-46.

Dyeing VII 2

DYEING. Improving the dye affinity of cellulosic textiles. J. Wakelin, *Rayon Textile Monthly 27,* 41-2 (Jan. 1946).

Modification (i. e. animalizing, etc.) of cotton with respect to dye affinity is discussed. Mention is made of "Rayolanda", the cynamide treatment and guanidine methacrylate treatments.
LWR TTD:4-46.

DYEING SYNTHETIC YARNS. Karl Heyman (to Am. Viscose Corp.). USP 2 394 688-9, Feb. 12, 1946.

Improved method of dyeing synthetic yarns uses Dispersol dyes. Example: a synthetic yarn (vinyl acetate or vinyl chloride) is immersed 1 hr. at 60°C in a dye bath (ratio 1:30) containing 1.5% dye and 5% beta-naphthol (based on yarn wt.). TTD:4-46.

FABRIC DYEING. A. Mellor & R. J. Mann. Brit. P. 570 880. *Textile Mfr. 72,* 54 (Jan. 1946).

Varying the degree of saponification on either side of a fabric of cellulose ester fibers allows dyeing the fabric in different shades by applying a dye which has affinity for the ester but none for the cellulose and another dye having affinity for the cellulose but none for the ester. TTD:4-46.

HOSIERY DYEING. Jno. P. Holmes & Robt. Burns (to Camille Dreyfus). Can. P. 433 195, Feb. 19, 1946.

To avoid delustered spots, stiff welts and loss of strength, rayon type hosiery is dyed, after preboarding with steam, in a bath of 120°F gradually raised to 175°F then lowered to 120° and rinsed in cold water. TTD:4-46.

DYEING CELLULOSE ACETATE. Henry C. Olpin (to Henry Dreyfus). Can. P. 433 196, Feb. 19, 1946.

Cellulose acetate fabric is dyed by immersion in an aqueous bath of a nitrodiarylaminecarboxylic acid amide or ester. TTD:4-46.

DYEING. Cyril M. Croft & Walter H. Hindle (to Camille Dreyfus). Can. P. 433 323, Feb. 26, 1946.

Cellulose acetate fabric is padded with concentrated

Turkey red oil at about 60°C (35-60 wt.-% fabric), dried, scoured, and dyed by a winch dyeing operation. TTD:4-46.

DYEING. W. Zerweck & E. Honold (to I. G. Farbenindustrie A.-G.,). Swed. P. 114 093, Nov. 18, 1943; *Svensk Papperstidning 48,* 280 (June 15, 1945).

Level dyeings on cellulosic fibers are obtained with vat dyes or sulfur dyes by the aid of dye bath reagents obtained by condensing polyalkylene polyamines of high molecular weight with alkylating reagents containing at least 2 alkylating groups in the molecule, both components being free from OH groups. TTD:4-46.

NYLON DYEING. Some aspects of nylon dyeing. A. K. Saville, E. I. duPont de Nemours & Co., Inc. *Am. Dyestuff Reptr. 35,* P51-5, 58-9 (Jan. 28, 1946).

Nylon dyeing is reviewed with respect to acetate, acid, azo and vat colors. Of these colors the dispersed acetate appear best for dyers. Acid and direct colors will come more into use because of greater fastness properties. Azo and vat dyes are difficult to apply to nylon and have poor light fastness. TTD:4-46.

SUBSTANTIVE DYEING. W. Zerweck & E. Honold (to I. G. Farbenindustrie A.-G.). Swed. P. 114 186, April 1, 1944; *Svensk Papperstidning 48,* 304 (June 30, 1945).

Improving the fastness of substantive dyeings on cellulosic fibers by an after treatment with a solution of a quaternary ammonium salt obtained by complete alkylation of a polyalkyleneimine. TTD:4-46.

KRASHENIE YULOCHNO-NOSOCHNYKH I TRIKOTAZHNYKH IZDELII KHOLODNYM SPOSOBOM (1. TEORETICHESKIE USLOVIYA PODGOTOVKI KHLOPCHATOBUMAZHNOGO VOLONKA K OKRASKE). (DYEING OF YULOCHNO SOCK AND HOSIERY PRODUCTS BY THE COLD METHOD. (1. THEORETICAL PROBLEMS OF PREPARATION OF THE COTTON FIBER FOR DYEING). S. I. Bensman; 1944; 30 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

STANDARD CLOTH FIELD GRAY. SHADE DEVELOPMENT. USE OF VAT DYES AND DYEING PROBLEMS. Combined Intelligence Objectives Sub-Committee Report No. XXV-29; price 1s 7d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

Printing — VII 3

NEW DYEING METHODS for low grade neppy cottons. Anon. *Textile Age 10,* No. 1, 102 (Jan. 1946).

A new pigment dyeing method, known as the oil-in-water process, gives uniformity and avoids uneven

neps by preventing migration of the resin and pigment material and by assisting in leveling the pigment. TTD:4-46.

PRINTING AIDS. Roy H. Kienle & Chester A. Amick (to Am. Cyanamid Co.). USP 2 394 918, Feb. 12, 1946.

Color intensification is achieved by the use of printing aids such as a quinonyl sulfonamide added to dye pastes and powders. These aids may be added at any point but preferably during manufacture of the dye paste or powder. TTD:4-46.

PRINTING INKS. Producing better printing inks. Philip Pollack. *Plastics 4,* No. 1, 34, 36-8, 123 (Jan. 1946).

The demands for printing inks of numerous types required for many different purposes are surveyed. Besides drying speed, other qualities desired in inks include hardness and resistance to scratching, fire and explosion. TTD:4-46.

DYE PRINTING. Geo. W. Seymour & Victor S. Salvin (to Camille Dreyfus). Can. P. 433 322, Feb. 26, 1946.

Cellulose acetate dyed with azo dyes is printed with different pastes composed of sulfoxylate formaldehyde. TTD:4-46.

Color measurement — VII 4

COLOR matching technique. Anon. *Can. Textile J. 63,* No. 2, 44, 46 (Jan. 25, 1946).

Kind of light under which color matchers examine samples is an important factor now being investigated. TTD:4-46.

COLOR. Some aspects of color. Raymond W. Jacoby. Ciba Co., Inc. *Am. Dyestuff Reptr. 35,* P56-8 (Jan. 28, 1946).

Such aspects of color as transmission, absorption and reflection of light, in determining color and depth of shade are considered in the light of tests made on mercerized and unmercerized cotton. TTD:4-46.

COLOR LOSS. Factors which cause or prevent agglomeration of pigment particles. Raymond W. Jacoby, for R. I. section AATCC. *Am. Dyestuff Reptr. 35,* P3-12 (Jan. 14, 1946). Reported in *Am. Wool Cotton Reptr. 60,* No. 3, 13-14 (Jan. 17, 1946).

The causes of loss in color yield are examined. Factors influencing the stability of pigment dispersions are considered under 4 heads; (1) electrical charge on particles, (2) hydration of color particles, (3) nature of colloidal dispersion of the thickener, (4) effects of finely divided solids. To eliminate variables the same vat color paste is used throughout: Ciba Blue 2BDG Double Paste. Photomicrographs show dispersions of the different media. Results indicate that agglomeration, if existing, is caused by factors (1), (2) & (3). TTD:4-46.

DYES AND DETERIORATION. How different types of dyestuffs affect the rate of deterioration of cloth exposed to weathering. A. Hempton Haynes, for S. E. section AATCC. *Am. Dyestuff Reptr. 35,* P29-37 (Jan. 14, 1946). Reported in *Am. Wool Cotton Reptr. 60,* No. 2, 14 (Jan. 10, 1946).

To determine any effect on rate of cloth deterioration from various dyes by exposure to weather, dyed and undyed cloth is weathered in different climates from Maine to Georgia. Spectrophotometric calculations are made with charts and tables showing the results. Warp-break tests show: naphthol dyed fabric deteriorates more rapidly than undyed bleach; sulfur, direct, diazotized and developed dyed cloth is more resistant to deterioration than undyed bleach (vat dyed cloth only slightly more); no mathematical relationship between deterioration and color fading seems to exist.
TTD:4-46.

MEASUREMENT OF COLOR. W. D. Wright, Adam Hilger, Ltd., London, 1945; price 30s.

Reviewed in *Indian Textile J. 56,* 399 (Jan. 1946).
TTD:4-46.

Color defects — VII 5

COLOR FAST FABRICS. H. Dreyfus. Brit. P. 571 056. *Textile Mfr. 72,* 54 (Jan. 1946).

To improve color fastness of dyed cellulose acetate fabrics the material is impregnated with a cyanamide solution, dried, and heated. TTD:4-46.

PROOFING — VIII

CATALYST OF WAR. Anon. *Rohm & Haas Reptr. 4,* No. 1, 6-9 (Mar. 1946).

Recent products developed by Rohm & Haas (Hyamine 3258 for mildewproofing; Lethane, insecticide; Rhozyme DX, textile desizing enzyme; etc.) are reviewed. TTD:4-46.

IMPROVEMENT OF CLOTHING FOR PROTECTION AGAINST HAZARDS. O. Mecheels. Brit. Intelligence Objectives Sub-Committee Report No. 91, price 7d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

INSECTICIDES, INSECT REPELLENTS, RODENTICIDES, AND FUNGICIDES. Combined Intelligence Objectives Sub-Committee Report No. XXVI-73; price 4s 2d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

Waterproofing — VIII 1

WATERTIGHT COTTON FABRICS. Frederick T. Peirce, N. C. State College. *Can. Textile J. 63,* No. 1, 36-7 (Jan. 11, 1946); *Textile Colorist 68,* No. 1, 18-19 (Jan. 1946).

Wartime developments in waterproofing of cotton fabrics are briefly described. TTD:4-46.

WATERPROOFING. Henry Dreyfus. USP 2 394 537, Feb. 12, 1946.

Cellulose acetate fabrics may be effectively waterproofed by impregnating them with long chain carbylamines (10-20 wt.-%). Crease resistance is improved. Example: Fabric made of high tenacity acetate yarn is immersed 10 min. in a 20% solution of octadecylcarbylamine in benzene, squeezed, and baked 30 min. at 110°C. TTD:4-46.

Rotproofing — VIII 3

DYEING COTTON with mineral khaki. VIII. Incorporation of copper with chromium and iron in mineral khaki for production of an effective fungicide and bactericide. IX. Effect of exposure to weathering agencies on yarns pigmented with copper, chromium, and iron compounds. E. Pace, F. M. Rowe, J. B. Speakman. *J. Soc. Dyers Colourists 62,* 9-29 (Jan. 1946).

From experiments (last 2 of 9 parts begun in 1941) on 24s/3 gray cotton it is found that the presence of a Cu content in pigments of not less than 0.5% will give maximum protection from fungi and bacteria. Cr. concentration should not exceed the equivalent of 4.8 g. Cr_2O_3 per liter, as too much Cr salt decreases Cu content. Change in Fe concentration does not greatly affect Cu or Fe content of the yarn. In acidic atmospheres, to be met in industrial regions, severe leaching of Cu occurs after prolonged exposure although incorporation of Fe with Cu prevents this to some extent. In other than industrial regions degradation will be by photochemical action and materials may be proofed with trivalent Cr compounds or by mineral khaki process. Yarn photographs, 7; graphs, 18; tables, 15. TTD:4-46.

PHENOLIC FUNGICIDES. Quantitative determination of phenolic fungicides. Sidney Gottlieb & Paul B. Marsh. *Ind. Eng. Chem. Analyt. Ed. 18,* 16-9 (Jan. 1946).

The textile mildew preventive 2,2'-methylenebis(4-chlorophenol), known as compound G4, is extracted from cloth by dilute Na_2CO_3 and reacted with 4-aminoantipyrine in the presence of potassium ferricyanide yielding a red dye suitable for colorimetric determination. Absorption and standard calibration curves are given. The method may be useful for other phenolic fungicides and germicides.
LGO TTD:4-46.

Flameproofing — VIII 4

SPOSOBY I SREDSTVA OGNEZASHCHITY DREVESINY. (WAYS AND MEANS OF FLAMEPROOFING WOOD). S. I. Taubkin; 1944; 75 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Shrinkproofing VIII 6

SHRINKPROOF WOOL . . . It's coming. Anon. *Colorado Wool Grower 11,* No. 11, 3, 15 (Jan. 1946).

Importantly aided by army tests and research, a shrinkproof wool is predicted on a commercial scale.
TTD:4-46.

SHRINKPROOFING WOOL. Use of polymers to make wool unshrinkable. I. Anhydrocarboxyglycine. A. W. Baldwin, T. Barr & J. B. Speakman, Imperial Chemical Industries, Ltd. *J. Soc. Dyers Colourists 62,* 4-9 (Jan. 1946).

Wool is rendered shrinkproof and wear resistant by coating the surface scales of the fibers with a protein film (anhydrocarboxyglycine polymer), the polymer being anchored to the fibers by reaction with the basic sidechains. The process is carried out at 50°C for 6 hr. in ethyl acetate solution with a liquor-wool ratio 33:1. The basis for this investigation is embodied in Brit. P. 567 501 (1945). TTD:4-46.

UNSHRINKABLE WOOL PROCESS, with special reference to treatment of wool materials containing rayon. Anon. *Silk & Rayon 20,* 116, 118, 122-3 (Jan. 1946).

Shrinkproofing processes for wool are discussed particularly as they affect mixtures of wool and rayon. They are: (1) treatment of wet wool with aqueous solutions of reagents such as Cl or Br, (2) treatment of predried wool with an alkalized organic solvent such as caustic soda in white spirit or butyl alcohol, and (3) treatment with a resin or polymer. Choice of methods in the case of mixtures is determined by the effect on rayon. The method of treatment with a resin or polymer probably is best for mixtures, as rayon is not changed. TTD:4-46.

SHRINKPROOFING. Jno. F. Cowley (to Tootal Broadhurst Lee Co., Ltd.). USP 2 395 724, Feb. 26, 1946.

Wool fabrics are made shrink-resistant by impregnating them with a ureaformaldehyde resin, drying, and then rinsing in aqueous HCl. A high degree of felting resistance is imparted without damage to the cloth.
TTD:4-46.

SHRINKPROOFING WOOL. Edw. C. Pfeffer, Jr. & Walter Kitaj (to Cluett Peabody & Co., Inc.). USP 2 395 791, Feb. 26, 1946.

Wool is effectively shrinkproofed in 2 successive steps: (1) the fabric is immersed in an alcoholic KOH solution for 5 min. at about 75°F; (2) it is impregnated with an amino-aldehyde resin (such as Aerotex M-3 or Berkamine P-424) and then heated to 290°F for 8 min. to insolubilize the resin.
TTD:4-46.

Stabilizing VIII 7

DEGRADATION OF COTTON. Decreasing the acid degradation of cotton sewing thread. J. David Reid, Laurence W. Mazzeno & Kyle Ward, Jr. Southern Regional Research Lab. *Textile Research J. 16,* 26-31 (Jan. 1946).

Cotton sewing thread used in bagging triple superphosphate fertilizers is degraded mainly by halogen acid fumes, from halide impurities present. Protective coatings and neutralizing agents on the fiber are ineffective. A humectant, triethanol amine, gave best protection by giving a more dilute solution of the acid in the thread and because of the relative alkalinity of the amine.
LWR TTD:4-46.

TESTING AND ANALYSIS IX

TESTING of yarns and fabrics. N. Eyre. *Textile Mfr. 72,* 41-3 (Jan. 1946).

Yarn and fabric testing has an important basis in consumer interest. Methods used for analyzing yarns are: visual examination, burning and staining tests, microscopic examination and fiber solubility differences. Each method is briefly discussed.
TTD:4-46.

TEXTILE TESTING for the consumer. Irwin D. Wolf, Kaufman Department Stores. *Can. Textile J. 63,* No. 2, 38-9, 47 (Jan. 25, 1946).

Desirability of critical appraisal of consumer products with the coöperation of the retail distributor and the textile technologist is discussed in an address before the AATT Dec. 5, 1945. TTD:4-46.

Physical properties IX 1

FABRIC TEST. IP machine used to measure friction of textiles. Russell A. Armitage, U. S. Testing Co. *Textile World 96,* No. 1, 202 (Jan. 1946).

An attachment to a conventional incline-plane tester (Scott) measures coefficient of friction of a wide range of fabrics. TTD:4-46.

FABRIC TESTS. Fabric construction for work clothing. Anon. *Am. Wool Cotton Reptr. 60,* No. 2, 11-12, 50 (Jan. 10, 1946).

Army testing on service fabrics at Camp Lee is commented upon. TTD:4-46.

FIBER TESTING. Form and length of drafting wave in cotton rovings. G. A. R. Foster & J. G. Martindale. *J. Textile Inst. 37,* T1-12 (Jan. 1946).

In order further to examine the causes of irregularity in cotton yarns tests are made on 3 types of cotton (Punjab-American, Tanguis, and Uppers). Control of the shorter fibers in drafting is one of the causes of

this periodic variation in thickness (drafting wave). Graphs and tables give details of this study.

TTD:4-46.

FLAMMABILITY. Evaluation of fabrics as to their flammability. Chas. W. Dorn, for N. Y. section AATCC. *Am. Dyestuff Reptr. 35,* P20-5 (Jan. 14, 1946).

The relative flammability of a wide variety of textile fabrics is tested and results tabulated: rayon fluff knit and white cotton flannellette (burned only in a slight circle); viscose rayon netting and long pile fabric (burned in 5-6 sec.); acetate rayon netting (burned in 5 sec. with slight flame); viscose rayon twill (burned at from 10-23 sec.); viscose rayon medium pile fabric (burned in 9.5 sec.); cotton blanket (burned in 10 sec.); cotton warp of 50% cotton, 25% each wool and rayon (burned in 14.2 sec.). These fabrics were not flameproofed. Conclusions: (1) wool, silk, nylon, Vinyon and Velon fabrics have no flammability hazard; (2) cotton is just as flammable as regenerated type rayon; (3) cotton will come to the critical point much more rapidly than rayon; (4) certain coated fabrics, generally slow to ignite, burn violently. Photographs and tables accompany.

TTD:4-46.

NYLON FABRICS. Some effects of dry heat upon properties of nylon fabrics. Arthur W. Etchells. *Am. Dyestuff Reptr. 35,* P38-42 (Jan. 14, 1946).

Heat treating improves handle and appearance of nylon fabrics. Heat treatment tests are made and tensile strength tested on a Scott Tester. Dyeing tests (with 0.5% dye at 185°F for 1 hr.) are then carried out. Charts indicate test results. TTD:4-46.

TIRE CORDS. Moisture relations of tire cords in tires. Helmut Wakeham, Edith Honold & H. J. Portas, Southern Regional Research Lab. *India Rubber World 113,* 659-62, 721 (Feb. 1946).

Environmental condition is the most important determinant of the moisture content of the cord in the tire. In humid climate the moisture content of cords is high even when the tire is operated under conditions conducive to high tire temperatures, because considerable time is required for the cord to undergo appreciable moisture loss through the rubber. The building of tires with low initial moisture content gives no assurance that these moisture values would be maintained. Cord tests should be carried out under wider variations of conditions.

LWR TTD:4-46.

VISCOMETRY. Determination of cuprammonium viscosity by the TAPPI method. Analytical Committee, Central Cellulose Laboratory. *Svensk Papperstidning 48,* 380-6 (Aug. 15, 1945).

TAPPI standard T203M-37 for determining cuprammonium viscosity is reprinted in full, with critical comments in Swedish, German and English. Mercury is recommended for agitation instead of the metal wedge. For viscometry of rayon pulps it is desirable to calibrate with a glycerol solution of lower viscosity than that suggested in the TAPPI method. Suggestions for preparing the cuprammonium solution and keeping its nitrite content within the tolerance are offered.

TTD:4-46.

WEIGHT CONTROL, a valuable tool of process industries. Anon. *Chem. & Met. Eng. 53,* 125-36 (Apr. 1946).

A report on weighing equipment and methods in mill and factory practice.

LCL TTD:4-46.

YARN STRETCHING. Practical effect of stretching synthetic yarns. R. H. Southern, for Piedmont section AATCC. *Am. Dyestuff Reptr. 35,* P26-8 (Jan. 14, 1946). Reported in *Am. Wool Cotton Reptr. 60,* No. 2, 13-14 (Jan. 10, 1946).

The effect of stretching on synthetic yarns is studied, and graphs of tests are given. If a yarn retains at least 15% total elongation it can withstand mechanical effects of processing. TTD:4-46.

FIBER MAT TEST. Herman W. Anway (to Wood Conversion Co.). Can. P. 433 315, Feb. 26, 1946.

Ultimate resiliency of a felted dry fibrous mass is tested by subjecting it to repeated impacts until felting and uncompressed density increments approach zero. TTD:4-46.

Fiber analysis — IX 2 a

CELLULOSE FIBERS. Anisotropic swelling. J. J. Hermans, *Rec. trav. chim. 65,* 121-4 (Feb. 1946).

The swelling properties of viscose fibers are investigated. It is found that the structural elements are oriented in the direction of the fiber axis upon stretching. Upon drying or reswelling thickness changes much more than length. TTD:4-46.

FIBER STRUCTURE. Progress of x-ray analysis of organic and fiber structures. W. T. Astbury, Univ. of Leeds. *Nature 157,* 121-4 (Feb. 2, 1946).

A review relating to 4 fiber types (polysaccharide, protein, polynucleotide and plastic). TTD:4-46.

FIBER TESTS. Friction between keratin surfaces as affected by some shrinkproofing treatments. M. Lipson & P. Howard. *J. Soc. Dyers Colourists 62,* 29-32 (Jan. 1946).

In experiments on 64s Merino wool to determine surface frictional properties of wool fibers it is found that directional frictional effect (DFE) on smooth keratin surface may be reduced without altering the physical structure of the fiber scales. The DFE is not significant in dealing with fiber surfaces with low co-

efficients of friction. Alcoholic caustic potash, unlike other reagents, increases coefficient of friction against scales about 50% and doubles it along the scales. Frictional measurements are shown in 5 tables.

TTD:4-46.

DIE UNTERSCHEIDUNG DER TEXTILFASERN. QUALITATIVE UND QUANTITATIVE ANALYSE VON FASERSTOFF-MISCHUNGEN. (DISTINGUISHING OF TEXTILE FIBERS. QUALITATIVE AND QUANTITATIVE ANALYSIS OF FIBROUS MIXTURES). Von Bruno Luniak. Verlag A. G. Gebr. Lehmann & Co., Zurich; 1945; price 28 fr.

Reviewed in *J. Textile Inst. 37,* P20 (Jan. 1946).

TTD:4-46.

Biological testing — IX 3

TROPICAL TESTING CHAMBER. Capt. T. F. Cooke & Lt. R. E. Vicklund. *Ing. Eng. Chem. Analyt. Ed. 18,* 59-60 (Jan. 1946).

A chamber is described in which the temperature, temperature changes, and relative humidity are closely controlled to simulate climatical conditions existing in the tropics. Various materials, including fabrics, plastics, wood and wood products, and protective coatings, were subjected to tests with 24 species of fungi. Only a few results are given.

LGO TTD:4-46.

Specifications — IX 4

SPECIFICATIONS. Nat'l. directory of commodity specifications. Anon. *A.S.T.M. Bull.* No. 138, 65 (Feb. 1946).

A new issue contains 1311 pages of specifications used for Government purchasing.

HAM TTD:4-46.

STATISTICS. Use of statistics in writing specifications. Caspar Goffman & Joseph Manuele, Westinghouse Mfg. Co. *A.S.T.M. Bull.* No. 139, 13-17 (March, 1946).

The use and significance of such statistical quantities as average, tolerance, standard deviation, frequency curve, etc., as used in setting up commodity specifications, are discussed.

HAM TTD:4-46.

APRONS, OPERATING, COTTON. Navy Dept. Specification 57A4a, Washington, 1945; 1 p.

TTD:4-46.

FACTORS AFFECTING RESULTS OBTAINED WITH MOONEY VISCOMETER. Rolla H. Taylor. Circular C451, Nat'l. Bureau of Standards, Washington 1945; 14 pp.; for sale by superintendent of documents, Washington 25; price 5 cents.

TTD:4-46.

FEDERAL SPECIFICATION FOR LEATHER, ARTIFICIAL (UPHOLSTERY). Specification KK-L-136b. Federal Standard Stock Catalog Division, Washington, 1945; 10 pp.; for sale by Superintendent of Documents, Washington 25; price 5 cents.

TTD:4-46.

MEN'S SPORT SHIRT SIZES, WOVEN FABRICS (OTHER THAN THOSE MARKED WITH REGULAR NECK BAND SIZES). Recorded Voluntary Standard of the Trade. Commercial Standard CS128-45. Nat'l. Bureau of Standards, Washington, 1945; 11 pp.; for sale by Superintendent of Documents, Washington 25; price 5 cents.

TTD:4-46.

PERFORMANCE TESTS OF WIRE STRAIN GAGES. 1. CALIBRATION FACTORS IN TENSION. 3. CALIBRATIONS AT HIGH TENSILE STRAINS. Wm. R. Campbell. Technical Notes 954 and 997. Nat'l. Advisory Committee for Aeronautics, Washington, 1945; 16 leaves and 14 pp. TTD:4-46.

STUDY OF "H" TESTS FOR EVALUATING ADHESIVE PROPERTIES OF TIRE CORD IN NATURAL AND GR-S RUBBERS. W. James Lyons, Mary L. Nelson & Carl M. Conrad. Publication AIC-99, USDA, Southern Regional Research Laboratory, New Orleans, La., 1945; 56 pp. TTD:4-46.

SUPPLEMENT TO FEDERAL SPECIFICATION FOR TEXTILES, GENERAL SPECIFICATIONS, TEST METHODS. Specification CCC-T-191a, Supplement. Federal Standard Stock Catalog Division, Washington; 1945; 57 pp.; for sale by superintendent of Documents, Washington 25; price 10 cents.

TTD:4-46.

WASTES — X

JUTE WASTE. Uses for jute waste. Anon. *Jute & Canvas Rev. 17,* No. 208, 7 (Jan.-Feb. 1946).

Various uses for jute waste are suggested, all dependent, however, on transport costs as the principal price factor. Suggested uses: coarse weft yarns for sackings, low quality paper, insulation, etc.

TTD:4-46.

CLEANSING — XI

CLEANING FABRICS. L. T. Edwards. Brit. P. 570 666. *Textile Mfr. 72,* 52 (Jan. 1946).

Sulfated alcohol compounded with free NH_3 cleans fabrics of linen, silk, wool, cotton, etc.

TTD:4-46.

SPINNERET WASHING. Am. Viscose Corp. Brit. P. 570 959. *Textile Mfr. 72,* 54 (Jan. 1946).

A machine spray-cleans, washes and oscillates a spinneret at the same time. TTD:4-46.

WASHING WOOLENS. Suggestions on washing woolen fabrics. Anon. *Am. Wool Cotton Reptr. 60,* No. 4, 13-14 (Jan. 24, 1946).

Practical suggestions are given for washing woolens, to rid them of soap, not grease. TTD:4-46.

HAZARDS XII

AIR DUCT DESIGN for industrial ventilating systems. C. C. Hermann. *Chem. & Met. Eng. 53,* No. 3, 118-21 (Mar. 1946).

Duct design is an important part of any dust removal or ventilating system. Plans, design, and tables are given for ducts.
LCL TTD:4-46.

DESIGN OF HOODS for efficient dust removal. C. C. Hermann. *Chem. & Met. Eng. 53,* No. 2, 158-61 (Feb. 1946).

Proper hood design is important in any dust removal problem. Practical engineering should replace former empirical designs. Good engineering practices are discussed.
LCL TTD:4-46.

FIRES IN MILLS. Insurance companies analyze mill fire expectancy. W. E. Peterson. *Textile World 96,* No. 1, 94-6 (Jan. 1946).

From a study of the causes of fire in over 200 cotton mills in the South, Associated Factory Mutual Fire Insurance Co. recommends changes in operating loads and machine speeds. TTD:4-46.

SPINNING EFFICIENCY. Increasing PMH G. Dakin, Shirley Inst. *Textile Weekly 37,* 168, 170, 172 (Jan. 25, 1946).

A lecture on methods of increasing production per man hour in spinning. They include shortened processing, suitable technical conditions, large packages and their efficient transport, training and correct workloading of operatives, and specialization of labor.
TTD:4-46.

TEXTILE FIRES. Carbon dioxide is suitable agent to fight textile fires. F. B. Allen, C-O-Two Fire Equipment Co. *Textile World 95,* No. 12, 104-5 (Dec. 1945).

Use of CO_2 is especially suitable for electrical fires and burning liquids. Portable cylinders as well as a fixed system are recommended. TTD:4-46.

WEAVING EFFICIENCY. Technical aspects of increasing PMH. I. H. Thomas, Shirley Inst. *Textile Weekly 37,* 174, 178 (Jan. 25, 1946).

Increase in production per man hour (PMH) on winding and weaving operations is a problem similar to increasing PMH of spinning and depends on 2 main factors: (1) reduction of the amount of yarn handling by operatives from winding to weaving and (2) provisions of automatic stop motions and protective devices. As for spinning, adjustment of the operative's work load is essential. TTD:4-46.

TEXTILE MILLS XIII

MODEL THREAD YARN MILL. Jas. T. Meador. *Textile Bull. 69,* No. 9, 22, 24-5 (Jan. 1, 1946).

Description of a mill modernization. A mill, originally opened in 1891 then closed, about 1930, for some 12 years, has been reopened. A new picker room completely reequipped is set up to run on Egyptian cotton. The card room, refloored, has Saco-Lowell cards and combers installed and Whitin drawing and fly frames. Lighting is fluorescent. Bus-duct system of wiring gives wide range of flexibility and eliminates need of a switchboard. TTD:4-46.

PLANT MODERNIZATION. Three phase modernizing at plants of Am. Yarn & Processing Co. C. Mallard Bowden. *Textile World 95,* No. 12, 106-8, 190, 193-4 (Dec. 1945).

Complete mill modernization has been carried out.
TTD:4-46.

TEXTILE MILL LAYOUT. Postwar mill construction and layout. T. V. Baddeley and Frederick Stones, Government (India) Planning Committee (Textiles). *Indian Textile J. 56,* 304-58 (Jan. 1946).

A comprehensive consideration of the many problems concerned with construction of a textile mill in India of the latest design, incorporating all the proper health conservation features, is presented. Working standards are discussed. A general floor plan for a mill is given. Comparisons with mills in USA, England and elsewhere are made. TTD:4-46.

Mill buildings XIII 1

FLOOR STIFFENING overcomes vibration. C. J. Shannon, Robert & Co. *Textile World 96,* No. 1, 97 (Jan. 1946).

In the older buildings of textile mills floors need strengthening to take care of modern highspeed machinery. TTD:4-46.

SPINNING ROOM LAYOUT. Planning construction of your postwar mill. Jas. Osborne. *Textile Age 10,* No. 1, 82, 84-6 (Jan. 1946).

Suggested arrangement of the spinning department in a new mill. TTD:4-46.

WOOLEN CARD ROOM layout reduces costs. Gustav Zellnik. *Textile World 95,* No. 12, 110-11 (Dec. 1945).

Diagrams illustrate 2 suggested layouts for the card room. TTD:4-46.

Mill machinery XIII 2

ENAMELLED MACHINERY. Vitreous enamel and textile machinery. A. J. Biddulph, Ferro Enamels, Ltd. *Textile Weekly 37,* 186, 188, 190 (Jan. 25, 1946).

Enamelling of the surface of textile machines affords much greater abrasion resistance than the uncoated steel or cast iron and also prevents corrosion (such as might occur during week-end shut-downs).
TTD:4-46.

WINDERS AND LOOMS. Swiss automatic winders and looms. D. R. H. Williams. *Textile Mfr. 72,* 23-5 (Jan. 1945).

Swiss textile machinery is praised for its high standards of precision engineering and workmanship. The Schärer pirn-winder and the Sulzer and Saurer looms are described. TTD:4-46.

TEXTILE MACHINERY DEVELOPMENTS. Carl D. Brandt, Whitin Machine Wks. *Textile Bull. 69,* No. 9, 16-18 (Jan. 1, 1946).

A discussion that includes references to drawing and carding along with consideration of break-draft tests. TTD:4-46.

FABRIC WINDER. Brit. Celanese, Ltd. Brit. P. 571 493. *Textile Mfr. 72,* 56 (Jan. 1946).

A fabric winding apparatus that causes a staggering of the selvedges prevents built-up edges. TTD:4-46.

KRATKII SPRAVOCHNIK PO REMENNO-PRIVODNOMU KHOZYAISTVU, VTOROE IZDANIE. (SHORT REFERENCE BOOK ON BELT-DRIVE CONTROL). K. V. Shcherbakov, Gizlegprom, (State Publishing House of Light Industry); 2nd ed. 1944.

Reviewed in *Tekstil'naya Prom.* No. 2-3, 32 (Feb.-Mar. 1946). TTD:4-46.

METODY VOSSTANOVLENIYA IZNOSHENNYKH DETALEI TEKSTIL'NYKH MASHIN. (WAYS OF RESTORING WORN-OUT PARTS OF TEXTILE MACHINES). G. D. Vol'pert, Gizlegprom (State Publishing House of Light Industry); 1943.

Reviewed in *Tekstil'naya Prom.* No. 2-3, 31 (Feb.-Mar. 1945). TTD:4-46.

PAMYATKA DLYA REMONTIROVSHCHIKA TKATSKOGO STANKA SISTEMY PLATT. (HANDBOOK FOR THE PLATT SYSTEM LOOM FIXER). PAMYATKA DLYA POMMASTERA TKATSKOGO TSEKHA. (HANDBOOK FOR THE SUB FOREMAN OF THE WEAVING ROOM). PAMYATKA DLYA TKACHIKHI, RABOTAYUSHCHEI NA PLATTOVSKOM STANKE (HANDBOOK FOR THE WOMAN WEAVER WORKING ON THE PLATT LOOM). A. I. Kucherov, Gizlegprom (State Publishing House of Light Industry); 1942.

Reviewed in *Tekstil'naya Prom.* No. 2-3, 31-2 (Feb.-Mar. 1945). TTD:4-46.

PEREDOVOI OPYT MEKHANICHESKIKH MASTERSKIKH TEKSTIL'NYKH FABRIK (ADVANCED KNOWLEDGE OF THE MECHANICAL WORKS OF TEXTILE FACTORIES). K. V. Mareev, Gizlegprom (State Publishing House of Light Industry); 1944.

Reviewed in *Tekstil'naya Prom.* No. 2-3, 32 (Feb.-Mar. 1945). TTD:4-46.

PLANOVO-PREDUPREDITELNYI REMONT OBORUDOVANIYA PREDPRIYATII TSELLYULOZNOI I BUMAZHNOI PROMYSHLENNOSTI. (PLANNED PREVENTIVE REPAIR OF EQUIPMENT OF THE CELLULOSE AND

PAPER INDUSTRY CONCERNS). State Paper Publishing House, Moscow; 1944; 64 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Mill power — XIII 3

FUEL SAVINGS in textile mills. Efficient generation of steam. W. Francis. *Textile Mfg. 72,* 3-7, 17. (Jan. 1946).

Fuel and power requirements of textile mills are discussed with a view to achieving the greatest economy of operation. The various types and sizes of coal are considered. Mechanical stoking is recommended to save from 10-20% in fuel costs. TTD:4-46.

THERMAL STORAGE. Counteracting the effects of variable steam demand: the 2 main systems. Chas. F. Wade. *Dyer 95,* 89, 91 (Jan. 18, 1946).

Fuel waste from the fluctuating demand for steam occasioned by breaks for meals, shift changes, etc., makes desirable an automatic control and a method of heat storage against peak demand. Two such systems are: (1) Ruth's or variable pressure and (2) feed-water or constant pressure. TTD:4-46.

TRUDY OBSHCHEGORODSKOI NAUCHNO-TEKHNICHESKOI KONFERENTSII PO VOPROSAM ENERGETICHESKOGO KHOZYAISTVA V LEGKOI I TEKSTIL'NOI PROMYSHLENNOSTI. (WORK OF THE GENERAL MUNICIPAL SCIENTIFIC-TECHNICAL CONFERENCE ON QUESTION OF POWER ECONOMY IN LIGHT AND TEXTILE INDUSTRY). Moscow; 1944; 70 pp. Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Mill lighting — XIII 5

LIGHTING. Should textile mills be windowless? Roy A. Palmer, Duke Power Co. *Textile World 96,* No. 1, 121, 123 (Jan. 1946).

A windowless mill is discussed from the point of view of cleanliness, even temperature and lower maintenance cost. TTD:4-46.

MILL LIGHTING. Fluorescent lighting for textile mills. Leonard K. Harrison, Westinghouse Electric Corp. *Cotton* (Atlanta) *110,* No. 1, 89-91 (Jan. 1946).

Replacement of incandescent with fluorescent lighting in 2 mills of Smyre Mfg. Co., Gastonia, N. C., is described. Average illumination in picking and carding areas is 15 footcandles; in other areas, 30. A simple formula for calculating necessary average footcandles is $\frac{abcd}{e}$ where a = no. of fixtures, b = lamps, c = lamp lumens, d = efficiency, and e = area (sq. ft.) to be lighted. TTD:4-46.

Atmospheric control **XIII 6**

AIR CONDITIONING. Evaporative cooling system installed at Utica. Earle Mauldin. *Textile World 95,* No. 12, 117, 184, 186 (Dec. 1945).

Renovation of a mill and installation of air conditioning in the spinning and weaving rooms are described. TTD:4-46.

DUST COLLECTING. Characteristics of commercial types of dust collectors. C. C. Herman, *Chem. & Met. Eng. 53,* No. 4, 106-9 (Apr. 1946).

A review.
LCL TTD:4-46.

FABRIC SPOTS. Air blowers for textile uses. A. G. Arend. *Textile Weekly 37,* 32, 34, 36 (Jan. 4, 1946).

Possibility of oil from air compressors spotting fabrics should be guarded against. Substitution of a spiral type of blower for the diffuser is helpful. TTD:4-46.

VENTILATION. Cotton mills need controls for dust and heat. Anon. *Textile World 96,* No. 1, 113, 176, 178, 180 (Jan. 1946).

The control of dust, lint, heat and humidity is necessary for the most healthful working conditions. TTD:4-46.

PAMYATKA PO VENTILATSIYA I UVLAZHENIYU VOZDUKHA NA KHLOPCHATOBUMAZHNYKH FABRIKAKH (Handbook on Air Humidification in Textile Factories). A. P. Kuz'menko, 1944; 46 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Process control **XIII 7**

CONTROL PROCESS. Production control system aids hosiery finishing. *Textile World 96,* No. 1, 108-9 (Jan. 1946).

Inventory methods in a hosiery mill are considered. TTD:4-46.

MAINTENANCE CONTROL can be tailored to fit average textile mill. C. Mallard Bowden. *Textile World 96,* No. 1, 102-4 (Jan. 1946).

A system of maintenance, with adequate records, is discussed. TTD:4-46.

BASIC SCIENCES **XIV**

Chemistry **XIV 2**

CELLULOSE. Hydrolysis and catalytic oxidation of cellulosic materials. R. F. Nickerson and J. A. Habrle, Mellon Institute. *Ind. Eng. Chem. 38,* 299-301 (Mar. 1946).

A differential hydrolytic method is used in a study of unmercerized (*I*) and mercerized (*II*) cottons, purified wood pulp (*III*) and high-tenacity viscose rayon (*IV*). Estimates of so-called amorphous, mesomorphous, and crystalline components in these materials are derived. The amorphous (most disordered) component appeared to hydrolyze readily and to have relatively high moisture affinity compared to the rest of the structure. It is present in approximate %: *I* 3, *II* 7, *III* 3, and *IV* 8. The distinctive hygroscopic and hydrolytic behavior of amorphous cellulose, as compared with the remaining accessible cellulose, may have significance in fiber structure and in relations of properties.
WPU, Jr. TTD:4-46.

CELLULOSE ESTERS. Preparation of cellulose acetate: action of sulfuric acid. Carl J. Malm, Leo J. Tanghe, and Barbara C. Laird, Eastman Kodak Co. *Ind. Eng. Chem. 38,* 77-82 (Jan. 1946).

The amount of combined S is determined at all stages in the manufacture of cellulose acetate. The combination of H_2SO_4 with cellulose is quantitative during the intermediate stages of acetylation, although little combined S is found during the pretreatment. Toward the end of the reaction the combined S is gradually replaced by acetyl. During acetylation, H_2SO_4 combines with cellulose to form an acid cellulose acetate-sulfate, resistant to hydrolysis by 14% H_2SO_4. During hydrolysis, the combined S drops rapidly; at the completion of esterification and during hydrolysis it is roughly proportional to the amount of H_2SO_4 catalyst used.
WPU Jr. TTD:4-46.

CELLULOSE STRUCTURE. Application of new methods of end group determination to structural problems in the polysaccharides. F. Brown, Sonia Dunstan, T. G. Halsall, E. L. Hirst & J. K. N. Jones, Manchester Univ. *Nature 156,* 785-6 (Dec. 29, 1945).

Use of periodic acid (HIO_4) as a reagent for determining reactive end group is successful if the reagent is a salt, e. g. $NAIO_4$ in KCl brine. Dextrins, starch and cellulose were examined with the modified reagent. The molecular magnitude of cellulose represents at least 1000 glucose units. TTD:4-46.

CELLULOSE XANTHATE SOLUTIONS. Dispersion of cellulose by cellulose xanthate solutions. Phillip C. Scherer, Va. Polytechnic Institute. *Rayon Textile Monthly 27,* 22-6 (Jan. 1946).

Cellulose xanthate solutions can disperse cellulose to a degree. The amount of dispersion is 12-13% with regenerated cellulose and lower with wood pulp cellulose. The dispersing power of cellulose xanthate is a function of concentration, degree of polymerization, viscosity, NaOH concentration, temperature, and time for solution.
LWR TTD:4-46.

COTTON WAX. Properties and constituents; solubility in common solvents. W. H. Tonn, Jr. and E. P. Schoch, Univ. of Texas. *Ind. Eng. Chem. 38,* 413-6 (Apr. 1946).

Cotton wax extracted from batches of Texas cotton with hot benzene differs from most commercial waxes

in that it is not predominantly an ester, but contains smaller amounts of fatty acids. Its dark color and unpleasant odor can be removed by bleaching agents. It blends well with other natural waxes and resins and can be used in many industrial applications. Certain solvents (acetone and alcohols up to 4 C) divide the wax into soluble and insoluble fractions. Cotton wax is not so soluble in these materials as in aromatics and in chlorinated aliphatic solvents, methanol being the poorest solvent of the group studied; $CHCl_3$, CS_2, and turpentine, the best. The portions of the wax insoluble in alcohols are hard resinlike substances, dark in color, melting above 100°C.

WPU, Jr. TTD:4-46.

COTTON WAX. Isopropyl alcohol in cotton wax determination. James H. Kettering. *Ind. Eng. Chem. Analyt. Ed. 18,* 275 (April 1946).

Identical values for wax in cotton are obtained using isopropyl alcohol as the extracting solvent in place of ethyl alcohol.

LGO TTD:4-46.

CROSS LINKAGES IN CELLULOSE and their practical implications. Emil Heuser, Inst. of Paper Chemistry. *Paper Trade J. 122,* No. 3, 43-8 (Jan. 17, 1946).

Adjacent chain molecules in cellulose may be held together laterally by secondary valences as well as by cross bonds of primary valence. The effect of formaldehyde treatment on cellulose, especially as to its increasing the wet strength of rayon, is examined. There is some evidence that cross linkages are formed between carboxyl rather than hydroxyl groups.

TTD:4-46.

IODINE COLOR OF STARCHES. Estimation of iodine color of starches and starch fractions. Stanley A. Watson & Roy L. Whistler. *Ind. Eng. Chem. Analyt. Ed. 18,* 75-6 (Jan. 1946).

The colors produced by iodine with solutions of various starches, starch fractions and starch derivatives are described in terms of Ridgeway and of Munsell color charts. The blue color due to amylopectin is used in detecting it in materials in which the amylose content does not exceed 6% of the total carbohydrates present.

LGO TTD:4-46.

MECHANICAL PROPERTIES OF TEXTILES, III. Henry Eyring, Textile Foundation, and George Halsey, Textile Research Institute. *Textile Research J. 16,* 13-25 (Jan. 1946).

Visco-elastic models, set up on a molecular basis, are analyzed and serve as the basis for deriving the stress strain curves for textiles. The properties of elasticity, toughness and resilience are discussed and a mathematical treatment is offered.

LWR TTD:4-46.

OSMOMETRY. Bacterial cellulose for osmometer membranes. C. R. Masson, R. F. Menzies, J. Cruickshank and H. W. Melville, Univ. of Aberdeen. *Nature 157,* 74 (Jan. 19, 1946).

The cellulose elaborated by *Acetobacter xylinum* can be produced as a membrane which has proved useful in osmometric measurements of the molecular weight of vinyl polymers up to 200 000.

TTD:4-46.

OXIDIZED CELLULOSES. Formation and properties of oxidized celluloses. Cornelius C. Unruh & William O. Kenyon, Eastman Kodak Co. *Textile Research J. 16,* 1-12 (Jan. 1946).

A detailed review is presented of the chemistry of oxidized cellulose. Emphasis is placed on techniques of oxidation, analysis, and characterization of the oxidation product.

LWR TTD:4-46.

PEANUT PROTEIN. Proteins of the ground nut (*Arachis hypogaea*). I. Isolation and properties of the proteins. II. Relationship between the different sedimenting species isolated from extracts of the ground nut. P. Johnson, Cambridge Univ. *Trans. Faraday Soc. 42,* 28-45 (Jan.-Feb. 1946).

Protein was extracted from peanuts with 10% aqueous NaCl, the protein was precipitated and the various fractions were investigated by means of the ultracentrifuge. Solutions of arachin were used to determine molecular weights of different fractions and their reversible dissociation as related to similar well established cases in the literature.

EKF TTD:4-46.

SORPTION. Survey of sorption chemistry. Edmund N. Harvey, Jr., Interchemical Corp. *Interchem. Rev. 4,* 95-110 (Winter, 1945).

General review of techniques and application of sorption. Surface-area data on 20 powdered solids are given; 25 figures and 18 references.

EKF TTD:4-46.

STARCH. New method for the separation of the amylose and amylopectin components of starch. W. N. Haworth, S. Peat & P. E. Sagrott, Birmingham Univ. *Nature 157,* 19 (Jan. 5, 1946).

Thymol is recommended as a selective precipitant for amylose as a water-insoluble complex. Blends of thymol with cyclohexanol or methylcyclohexanol are also useful. Potato starch appears to contain more than one type of amylose. TTD:4-46.

SURFACE FILMS. Equilibrium spreading pressure of oleic acid and of ethyl sebacate on concentrated salt solutions. J. A. Donnison and E. Heymann, Univ. of Melbourne. *Trans. Faraday Soc. 42,* 1-5 (Jan.-Feb. 1946).

Equilibrium spreading pressures (ESP) of oleic acid and ethyl sebacate on concentrated solutions of univalent salts were investigated using the ring method. Except for KCl, all salts increase ESP with increasing activity in an approximately linear relationship. Increase of attraction between organic molecules and sub-

strate and increase in repulsive terms in system of forces between molecules in the film are attributed to presence of ions in the film phase.
EKF TTD:4-46.

ULTRAVIOLET ON CELLULOSE. Action of ultraviolet light upon cellulose and cellulose triacetate. E. Heuser & Geo. N. Chamberlin, Inst. of Paper Chemistry. *J. Am. Chem. Soc. 68,* 79-83 (Jan. 1946).

Cotton linters and cellulose triacetate were irradiated by ultraviolet light from two sources (a 600-watt UA-32A2 and a 600-watt No. 83 Uviarc tube) in an atmosphere of helium, in the absence of appreciable amounts of oxygen and water vapor. The degree of polymerization, Cu number, and percentage of uronic acid determined as CO_2 were the criteria of changes. Comparison of the results reported here with the ones obtained earlier (*J. Am. Chem. Soc. 66,* 753 (1944) shows that: ultraviolet irradiation of cellulose and cellulose triacetate in atmospheres of nitrogen and helium damages them much less than irradiation in atmospheres of oxygen, but the irradiated material suffers degradation afterwards, if stored in the presence of air or oxygen; in the absence of ultraviolet light, oxygen produces no changes in the degree of polymerization, Cu number, and uronic acid content of cellulose triacetate; and in cellulose itself, the hydroxyl groups are not involved essentially in that part of the irradiation reaction which leaves the glycosidic linkages in a condition unstable to oxygen (post-irradiation effect).
ALN TTD:4-46.

VISCOMETRY. I. The flow of starch pastes. Part IV. A new consistometer for starch pastes and some results obtained with it. R. S. Higginbotham. *Shirley Inst. Memoirs 20,* No. 26, 1-20 (Jan. 1946).

An instrument for measuring the consistency of starch pastes uses a stirrer with a paddle-type rotor driven through a dynamometer. Torque is read from a quadrant balance. The torque in gram-cms. is called the consistency. Measurements are given for 10% pastes of maize, wheat, tapioca, farino, sago, oxidized, and acid-treated starches. Results are reproducible to 1% for unmodified starch. A sample of 170 cc is required. Large differences in consistency are found for various starches in 10% pastes, some prepared at 90° and some at 99°C. After 1 to 6 minutes consistency reaches a maximum corresponding to maximum swelling of the granules: thereafter it decreases to a steady value reached in 40 to 50 minutes. The relation between these consistency values and apparent viscosities determined by other instruments and the effect of non-Newtonian flow characteristics are discussed.
TTD:4-46.

WOOL. Frictional properties of wool treated with mercuric acetate. M. Lipson & E. H. Mercer, Central Wool Committee Testing House (Australia). *Nature 157,* 134-5 (Feb. 2, 1946).

Data for frictional behavior of wool rubbed on horn before and after treating the wool with mercuric acetate confirm the findings of Barr and Speakman, which show that the effect of mercuric acetate is not due to any change in coefficient of friction. TTD:4-46.

WOOL. Presence of a delta ^{5}-unsaturated sterol derivative in the medulla cells of keratin fibers. J. L. Stoves, Univ. of Leeds. *Nature 157,* 230 (Feb. 23, 1946).

A hitherto unidentified nonprotein constituent of medulla cells from wool and from the hair of goats, rabbits and horses is now shown to be a sterol derivative, probably cholesterol. TTD:4-46.

WOOL. Entropy and elasticity in keratin and myosin. H. J. Woods, Univ. of Leeds. *Nature 157,* 229-30 (Feb. 23, 1946).

Wool fibers which have been "generalized" (relaxed at high stretch in dilute NaOH solution and allowed to return to their original length before washing) can be supercontracted (shrunk below their original length) in hot water or steam. When, instead of supercontracting, they are stretched in cold water the entropy decreases, thus contributing to the load. But as elongation rises above 1% the internal energy effect increases rapidly until it far outstrips the entropy contribution. There is little or no hysteresis in the entropy effect in the complete stretch-shrink cycle.
TTD:4-46.

ADVANCING FRONTS IN CHEMISTRY, HIGH POLYMERS. Sumner B. Twiss, editor, Vol. I. Reinhold Publishing Corp. New York, N. Y.; 196 pp.; 1945; price $4.00.

Reviewed in *Chem. Eng. News 24,* 265-6 (Jan. 25, 1946). TTD:4-46.

FLUOROCHEMISTRY. A COMPREHENSIVE STUDY EMBRACING THE THEORY AND APPLICATION OF LUMINESCENCE AND RADIATION IN PHYSICOCHEMICAL SCIENCE. Jack DeMent, Chemical Publishing Co., Brooklyn, N. Y.; 1945; 796 pp.; price $14.50.

Reviewed in *Chem. Eng. News 24,* 264 (Jan. 25, 1946). TTD:4-46.

INTRODUCTION TO THE CHEMISTRY OF CELLULOSE. J. T. Marsh & F. C. Wood. Ed. 3. Chapman and Hall, Ltd., London, 1945; 525 pp.; price 32s.
TTD:4-46.

PHOTOSYNTHESIS AND RELATED PROCESSES. I. Eugene I. Rabinowitch. Interscience Publishers, Inc., New York, N. Y.; 1945; 614 pp.; price $8.50.

Reviewed in *J. Chem. Education 23,* No. 1, 52 (Jan. 1946). TTD:4-46.

PRELIMINARY STUDIES ON IMPROVED WOOD. III. COMPREGNATED WOOD. Indian Forest Leaflet 77-1945 (Utilization), Forest Research Inst. Dehra Dun, India, 1945.

Reviewed in *Nature 156,* 587-8 (Dec. 29, 1945).
TTD:4-46.

RESEARCH ON MANUFACTURE OF CELLULOSE PULP. Brit. Intelligence Objectives Sub-Committee Report No. 54; price 7d.

Listed in *Govt. Publications (Great Britain)* (Jan. 1946). TTD:4-46.

SWELLING STRESSES IN GELS, AND THE CALCULATION OF THE ELASTIC CONSTANTS OF GELS FROM THEIR HYGROSCOPIC PROPERTIES. W. W. Barkas. Special Report 6, Forest Products Research, Dept. of Scientific and Industrial Research, London, 1945; 62 pp.; price 1s. TTD:4-46.

Physics XIV 3

ELECTRONICS—servant or fad? Paul G. Weiller, *Instruments 19,* 2-8 (Jan. 1946).

Electronic devices are discussed under 3 types of uses: (1) as a fad, where other methods would do as well; (2) where the electronic device is a minor part of the equipment; (3) where the electronic device is a major item. Advantages and disadvantages are listed as guides in determining whether or not electronic devices are applicable to a problem.
LCL TTD:4-46.

SURFACE TENSION. Liquid rise in a capillary tube. W. E. Brittin, Univ. of Colorado. *J. Applied Physics 17,* 37-44 (Jan. 1946).

The dynamics of capillary rise are treated mathematically by assuming (a) the same forces act on the liquid when in an accelerated state of motion as in a steady state, (b) angle of contact of liquid with capillary wall is constant, (c) wetting of tube is not a rate determining factor, and (d) the surface tension is constant. Theory leads to a second-order, nonlinear differential equation. Motion of liquid in tube, described by formal solution to this equation, accords with experimental data.
EKF TTD:4-46.

Biology XIV 4

FUNGICIDES AND THEIR ACTION. Jas. G. Horsfall. Vol. II of Annales Crytogamici et Pathologici, Franz Verdoorn editor. Chronica Botanica. Waltham. Mass.: 1945; 239 pp.; price $5.00.

Reviewed in *Chem. Eng. News 24,* 100 (Jan. 10, 1946). TTD:4-46.

Engineering XIV 5

CHEMICAL ENGINEERING PROGRESS for peace: Anon. *Chem. & Met. Eng. 53,* 123-34 (Feb. 1946).

A review of wartime chemical engineering developments which show promise of peace-time uses includes consideration of plastics and glass fiber.
LCL TTD:4-46.

ENGINEERING. Anon. *Dyer 95,* 86-7 (Jan. 18, 1946).

Indirect lighting, consisting of incandescent lamps in combination with mercury vapor lamps, gives shadowless lighting. Centrifugal pumps of a Si-Fe composition are impervious to the acids generally to be found in the dye baths. TTD:4-46.

KARBATE MATERIALS, development and applications. M. R. Hatfield & C. E. Ford. *Trans. Am. Inst. Chem. Engrs. 42,* 121-47 (Feb. 25, 1946).

Improvements in properties of Karbate materials and advancements in equipment design, for use in applications of chemical corrosion and thermal shock, are discussed. Equipment includes piping, pipe fittings, valves, heat exchangers, coolers, pumps. Karbate is useful where processes require acid resistant apparatus, as for acid dye baths.
LCL TTD:4-46.

PRODUCT ENGINEERING. Getting more facts, less fancy, in product designs. Anon. *Modern Industry 11,* No. 1, 34-9 (Jan. 1946).

Typical job analysis is given as an example of how to improve a product. Investigation into customer desires in dry cleaning improvements and fabric trends is suggested. TTD:4-46.

AVTOMATICHESKIE REGULATORY (AUTOMATIC REGULATORS). V. L. Lassievskii, 1944; 391 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

TEXTILE RESEARCH XV

FOREIGN PATENTS. Libraries have abstracts and complete documents. Anon. *A.S.T.M. Bull.* No. 138, 65-6 (Feb. 1946).

A list of the libraries from which abstracts of the patents granted by enemy countries may be obtained.
HAM TTD:4-46.

CURRENT COTTON RESEARCH PROGRAM IN PRODUCTION AND RELATED FIELDS. Frank J. Welch, Miss. State College Agricultural Experiment Station; 1945; 103 pp.

Reviewed in *Textile Research J. 16,* 34-5 (Jan. 1946). TTD:4-46.

Government research XV 1

GERMAN TECHNICAL DEVELOPMENTS IN TEXTILE FINISHING PROCESSES. Francis S. Richardson, OQMG. Textile Series Report No. 3, U. S. Dept. of Commerce, Office of Publication Board, Washington, D. C.; 1946; 219 pp.

Documents included (in German): "Bleaching and Improving of Blended Tissues and Fabrics" by H. Korte E. Kayser and W. Waibel; German patent 615 680 on combination bleaching method (to I. G.

Farbenindustrie A.-G.); and an I. G. Farbenindustrie publication extract on new bleaching agents.
TTD:4-46.

GERMAN TEXTILE MILLS. War damage to Germany's textile mills. Anon. *Can. Textile J. 63,* No. 1, 21 (Jan. 11, 1946).

Extent of destruction in all but Russian occupation zone is reported. TTD:4-46.

TEXTILE RESEARCH IN GERMANY. J. P. Meierhans. *Textile Mfr. 72,* 26-8 (Jan. 1946).

The work of technical experts is briefly reviewed. German research on immersion suits, cottonized flax, and parachutes are especially discussed. TTD:4-46.

WOOLEN AND WORSTED industries. Werner von Bergen. *Textile Mfr. 72,* 32 (Jan. 1946).

Number of looms, combs, and spindles in German industries is tabulated. Wool processing in Germany (scouring, dyeing, spinning, weaving and finishing) is surveyed and the damage from war considered.
TTD:4-46.

DOMESTIC COTTON SURPLUS DISPOSAL PROGRAMS. Edgar H. Omohundro, Nathan B. Salant, Maurice R. Cooper & L. D. Howell. Miscellaneous Publications 577, USDA, Washington, 1945. For sale by Superintendent of Documents, Washington 25; 51 pp.; price 10c. TTD:4-46.

PUBLICATIONS ISSUED IN 1945. Circular of Southern Regional Research Laboratory, New Orleans 19, La. USDA Agricultural Research Administration. TTD:4-46.

SBORNIK STATEI PO OTDEL'NYM VOPROSAM TSELLYULOZNOI I BUMAZHNOI PROMYSHLENNOSTI (COMPILATION OF ARTICLES ON PARTICULAR QUESTIONS OF THE CELLULOSE AND PAPER INDUSTRY). State Paper Publishing House, Moscow; 1944; 88 pp.

Copy in Nat'l. Bureau of Standards, Washington, D. C. TTD:4-46.

Academic research XV 2

CELLULOSE RESEARCH. Brief review of research activity in the Central Cellulose Laboratory, the Wood Research Laboratory and the Cellulose Laboratory of the Royal University in 1944. Erik Hägglund. *Svensk Papperstidning 48,* 193-5 (April 30, 1945).

Fundamental research in the Swedish Wood Research Institute, in collaboration with the Central Cellulose Laboratory and the Cellulose Laboratory of the Royal University, have clearly demonstrated that lignin is chemically combined with the polysaccharides of wood. Studies include the mechanism of sulfite and sulfate pulping, and the relations of properties of wood to quality of pulps for paper and rayon.
TTD:4-46.

TEXTILE RESEARCH. Plans and progress in textile research. Ward Delaney, Inst. of Textile Technology. *Textile Colorist 68,* No. 1, 14-15, 43 (Jan. 1946).

A lecture. TTD:4-46

TEXTILES. How the war affected civilian textiles. Bess V. Morrison, Hazel M. Fletcher, Pauline B. Mack, Esther C. Morse, Ethel L. Phelps, and Evelyn E. Stout. *J. Home Econ. 38,* 21-30 (Jan. 1946).

The effect of wartime production on the quality of textile fabrics is measured. Of 14 types of fabrics studied 5 were of cotton, 5 of rayon and 4 of wool.
TTD:4-46.

Industrial research XV 3

DESIGN AND TEXTILES. Herbert Woodman. *Dyer 95,* 70 (Jan. 18, 1946).

A lecture on training designers in textile industry.
TTD:4-46.

INDUSTRIAL RESEARCH progress at Armour Research Foundation, 1944-1945. Jesse E. Hobson. *Chem. Eng. News 24,* 161-2 (Jan. 25, 1946).

Among projects reported are: beating of fibers and drying, production of cellulose from waste materials, hard fiber standards, and cotton warp sizing. The new size prevents all shedding of lint on the looms.
TTD:4-46.

ORGANIZATION OF TECHNICAL RESEARCH IN INDUSTRY. Industrial Research Institute, New York, N. Y.; 1945; 15 pp.

Reviewed in *Textile Research J. 16,* 35 (Jan. 1946).
TTD:4-46.